JULY, 1949

The Review of Gastroenterology

OFFICIAL PUBLICATION

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

Diagnosis of Carcinoma of the Rectum by Cytologic Study

The Hemolytic Escherichia Coli As A Cause of Diarrhea

Treatment of Colonic Disorders With Polymolecular Lactic Acid Crystals Combined With Lactose

Anal Eroticism and Certain Anorectal Syndromes

Some Aspects of Proctology in Brazil

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Fourteenth Annual Convention

Boston, Mass., 24, 25, 26 October 1949

VOLUME 16 NUMBER 7

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(INCORPORATING THE AMERICAN JOURNAL OF GASTROENTEROLOGY)

The Pioneer Journal of Gastroenterology, Proctology and Allied Subjects in the United States and Canada

VOLUME 16 JULY, 1949 NUMBER 7

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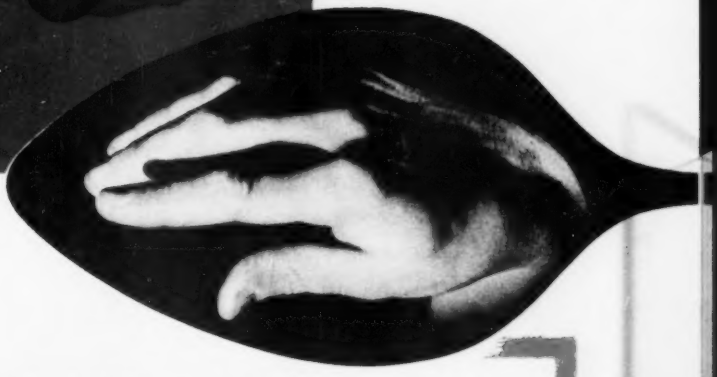

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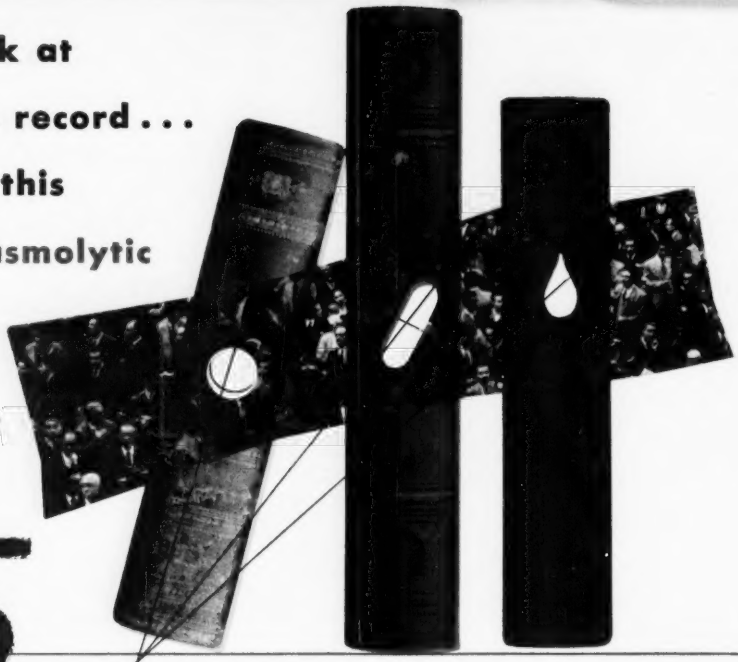

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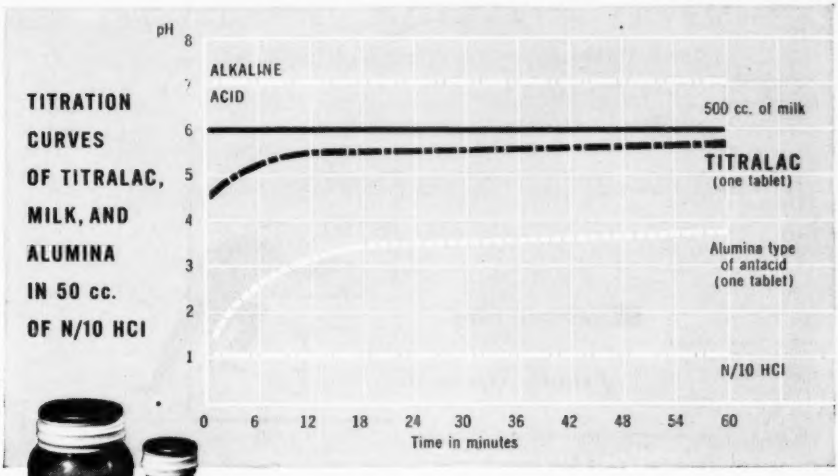

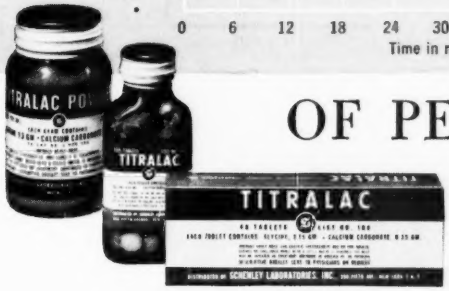

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The Review of Gastroenterology

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ANAL EROTICISM AND CERTAIN ANORECTAL SYNDROMES*

EMIL GRANET, M.D.
and
ERNST HAMMERSCHLAG, M.D.
New York, N. Y.

In medicine, especially gastroenterology, when the organic origin of a symptom complex has been carefully eliminated and the patient's manifest behavior exhibits what is commonly called "nervousness", the usual attitude is that one is justified in assuming psychic factors as the cause of symptoms. After labeling the patient with a diagnosis of neurasthenia, unstable personality, functional disease or other similar indefinite expressions, the patient is usually dismissed with therapeutic advice of but little effectiveness or practicability. There is little inclination to go more deeply into the patient's psychologic situation thereby attempting to demonstrate a relationship between his fundamental emotional makeup and the manifested physiologic processes. No doubt few of us can spare for the patient the time that this type of investigation entails. Furthermore, too many of us fail to recognize the emotional tension genesis of certain clinical syndromes. Failing thus we doggedly and ineffectually persist in treating with medication a symptom of neurotic genesis thereby endangering the patient's emotional and financial security as well as our own medical reputation.

Certain proctologic syndromes are directly related to tension states which manifest themselves through anal impulses. Our present concept of what is termed "anal eroticism" requires presentation in some detail.

Anal Eroticism

In the course of the emotional development of the child, various organ systems in succession play a dominant role: first the stomach, later the lower intestinal tract and finally, during puberty, the genital system. The functioning of the various organs frequently is accompanied by pleasurable sensations and subsequently in some instances by feelings of rage. Thus the baby gives physical expression to its feelings of love and hate by sucking, biting, licking, spitting, wetting, messing or holding back its bladder or bowel dejecta.

In the second year of life a great part of the infant's emotion is connected with its excretory functions. During this period the infant gets its toilet training—

*Read before the Thirteenth Annual Convention of the National Gastroenterological Association, New York, N. Y., 7, 8, 9, 10 June 1948.

a period of tremendous importance to its development. For the first time in its life the child is taught to regulate a function in order to comply with the demands of the outside world. It is the first step in its social adaptation and creates a great amount of resentment, because it ends the period of lack of inhibitions, which the child enjoyed up to that time. During this period the child also experiences for the first time his ability to master his environment by giving or holding back his excretions not only when he is asked to do so but also when he feels like it.

During puberty these impulses of infantile eroticism fuse into a harmonious whole—the sexuality of the adult. But this development may undergo a variety of disturbances. Anxieties and fears that beset the child may cause single components to resist the fusion. In particular certain components of infantile sexuality continue to occupy unchanged, a niche in the unconscious. When as an adult he later experiences a sexual disappointment, he tends to fall back or regress to a pattern of infantile sexuality, in which he felt more secure, and thus may come to center his emotions on the anal zone. If the regression is complete, the individual will be "fixated" to the anal stage in his character development. He will consequently experience all his emotional relationships in terms of the inherent reactions of this stage, which is characterized by conflicting feelings of aggression and submissiveness.

Freud suggested the reason why perverts openly, and neurotics unconsciously, seek sexual gratification in seemingly unnatural ways. These satisfactions which appear strange to normal adults are really the normal forms of infantile sexuality. Perverts and neurotics are alike in this, that they have for some reason failed to achieve sexual maturity and are still preoccupied with infantile pleasures which normal adults have outgrown. The repression of adult heterosexual drives in regression to the infantile anal phase manifests itself frequently through the presence of latent homosexual trends. This explains why disturbances in the anal region such as pruritus ani, show such outspoken chronicity and require such prolonged treatment. Management of this symptom requires manipulations in and about the anus and serves in some cases to gratify latent homosexual impulses. Guilt feelings are minimized because the anal eroticism has been unconsciously desexualized through the complicated ritual of treatment demanded by the anal pruritus.

Conditions combining a psychoneurosis with a physiologic disturbance have created the need for the useful term "psychosomatic". The terminal bowel is the site of a number of conditions in which symptoms are motivated by nervous tension states. Several such syndromes will be briefly considered.

The Colopathies

Situational conflicts resulting in anxiety, hostility and resentment have been shown repeatedly in man as well as in animals to result in profound and prolonged hyperemia, hypermotility and hypersecretion in the stomach. There is strong evidence that these tension states are directly involved in the genesis of

peptic ulcer in man. Similarly fear, rage, anxiety and other emotional tension states have been held largely responsible for manifestations of colon dysfunction likewise characterized by hyperemia, hypermotility and hypersecretion. In certain individuals it is probable that the continued influence of these anxieties results in somatic conditions collectively known as the colopathies. These include mucous diarrhea, hemorrhagic and ulcerative colitis, spastic constipation and dyschezia. White, Cobb and Jones[1], Alexander[2], Daniels[3], and Murray[4] have made notable contributions toward the psychic genesis of these syndromes and their writings should be consulted by all those interested in these conditions. Alexander, writing on colitis concludes that the emotional content of the chronic psychological stimulus responsible for the increased peristalsis is (1) either a narcissistic wish to produce as well as the urge to make restitution (excrement = gift) or (2) an anal-sadistic impulse in which the excrements are used as weapons of aggression expressed through the vegetative system instead of the voluntary system. He further assumes that neurotic constipation is a reaction against the obligation to give.

An illustrative case is that of a dominating female patient, age 52, who complained of painful, bloody diarrhea. A hemorrhagic ulcerative proctosigmoiditis was found on examination. Onset occurred five years before she came under our observation during a period of prolonged anxiety over the safety of her two sons at the Front. After V-E Day and the armistice that followed, symptoms entirely subsided for a period of ten months. One of her sons eloped with a young woman immediately after his return from Europe. Our patient, his mother, violently opposed the match because she considered the young woman socially unsuitable. Bloody diarrhea recurred immediately following her son's marriage and has persisted with periods of exacerbation following each visit with the young people. Various medical regimens prescribed by a number of physicians have failed consistently to influence the course of the disease.

It is probable that in this patient fear for the safety of her sons resulted subconsciously in the colitis and its frequent "offerings". The need for this "sacrifice" ceased with the armistice and the patient became symptom free. Recurrence after her son's marriage was obviously an anal sadistic attack on her daughter-in-law.

Proctalgia Fugax

This term introduced by Thaysen[5] describes a syndrome of idiopathic rectal pain for which no valid organic cause has been established. The clinical picture varies in individuals but a typical attack can be described as follows:

Onset is insidious, without warning, occurring at any time, often awakening the patient from a sound sleep. The patient is aware of a sense of discomfort in the rectum, located some 5 to 10 cm. above the anus, which increases rapidly in intensity to reach agonizing proportions. The paroxysm persists at maximum intentensity for about 5 minutes, then gradually subsides leaving the patient with a feeling of marked weakness and shock (Granet[6]). The actual cause of the pain is

not known although the spastic nature of this phenomenon is obvious. Its psychosomatic genesis is suggested by its onset in sleep often during periods of tension states (fear, guilt, fatigue) and its occurrence in various reports following coitus, masturbation and other phases of exciting sexual states. The following case history is pertinent.

A female patient, age 43, complains of frequent attacks of spasmodic rectal pain of several years duration. Significant facts in the history are these. She married at 18 following which periods of mucous diarrhea occurred. Her marital sexual relations are unsatisfactory as coitus rarely culminates in orgasm. In recent years, following frustrating sexual intercourse, she finally falls asleep. She often dreams at these times of erotic experiences of such intensity that she is awakened in orgasm. Shortly after this pleasurable interlude she gradually becomes aware of an increasingly severe cramp in the rectum which follows the pattern of a typical attack of proctalgia fugax. The history alone suggests that the concentrated and conflicting feeling of rage, pleasure, guilt and retribution result in strong retention phenomenon, spasm and pain.

We proctologists constantly see patients who have made the rounds attempting to obtain relief for intolerable discomfort involving the anus variously described as burning, crawling or aching. Examination rarely reveals lesions which would explain the symptoms. The obviously neurotic patient gives a detailed history, going back many years, of treatment entailing anal operations, injection treatments, physiotherapy and sundry local applications, all without satisfactory relief. Even a cursory anamnesis in these individuals will suffice to bring out the latent homosexuality of many of them and its projection into their symptomatology.

Neurogenic Pruritus Ani

The occasional case of persistent anal pruritus exists in which no known etiological factor can be demonstrated despite the most painstaking investigation. These patients continue persistently symptomatic despite empiric utilization of the gamut of our therapeutic armamentarium. Furthermore, despite constant pruritus, the perianal skin of these patients shows few signs of the usual chronic dermatitis or lichenification, though it presents evidence of self-induced scratch marks. It becomes increasingly clear that in certain neurotic individuals the anal pruritus may be the manifest subjective symptom derived in each case from hidden subconscious tension states.

The definite pleasure relationship of pruritus ani and the scratching thereof is well known to both determatologists and psychiatrists. Stokes[7] comments on "the masturbatory element in many cases of pruritus, while the 'masochistic' element is inherent in the concomitant suffering and pain". Recent psychoanalytic literature contains several reports of patients who utilize their anal pruritus as a means of gratifying their compulsive anal masturbation (Granet[6]).

It is important that we recognize patients with neurogenic pruritus ani. In these, local therapy is futile except as a means of substituting a treatment ritual

for the impulse to scratch. In severe cases, psychotherapy should be utilized without delay. A male patient, age 28, with a two year history of intractable pruritus ani, treated intensively and unsuccessfully with x-ray, ultraviolet ray, and sundry types of subcutaneous injections was hospitalized because of a severe perianal cellulitis induced by scratching. Following prolonged therapy with continuous wet dressings, bed rest and antibiotics, a modified Ball undercutting operation, (subcutaneous neurotomy) of the perianal skin and anal mucoderm was performed. Within 10 days of operation severe anal pruritus recurred despite complete anesthesia of the undercut area for touch, pain and temperature. That his "fixation phenomenon" had no regard for the physiology of nerve healing was clearly demonstrated in this patient.

Venereal Disease of the Anus and Rectum

The interesting history of the development of our knowledge of lymphogranuloma venereum is well known to us all. In anorectal lymphogranuloma venereum exhaustive studies attempted to correlate inguinal adenopathy as the earlier lesion and subsequent retrograde dissemination of the virus to later infect the rectum. Although in females it is conceivable that contamination from the genital tract can occur, it is becoming increasingly clear that rectal lymphogranuloma is most often a primary disease. Passive rectal intercourse is not uncommon in the social and racial groups in which most cases of this virus disease occur. Grace and Henry[8] were able to elicit a history of exposure through passive rectal intercourse in 24 (63 per cent) of 38 males and in 5 (33 per cent) of 15 females with anorectal lymphogranuloma. They quote Besaude who claims this route of direct infection in 80 per cent of 78 males with the disease. In a recent personal communication Grace feels that in the light of his more recent experience, the latter figures are more nearly correct.

Gonorrhea of the rectum must be considered in the differential diagnosis of all patients with inflammatory proctitis. Surprisingly little has been written in the contemporary literature regarding this disease. The clinical picture varies in individual cases from mild injection of the rectal mucosa to changes characterized by intense inflammatory edema, mucosal hemorrhage, superficial ulceration and pus. Demonstration of the gonococci on direct smear or culture establishes the diagnosis and with our antibiotics, treatment is no longer a difficult matter.

Epidemics of gonorrheal proctitis in institutionalized infants have occurred. In males passive rectal coitus is the usual method of infection although finger contamination by a genitally infected female during heterosexual coitus has been described. In females most reported cases are coexistent with genital gonorrhea and probably result from contamination. Cases of gonorrheal proctitis personally observed occurred in overt homosexual males. In addition two 16 year old boys with acute rectal gonorrhea acquired at their boarding school, were seen. Pederasty is common in adolescent boys and outbreaks of rectal gonorrhea as well as syphilis have been reported in schools and penal institutions (Martin[9]).

The presence of perianal condylomata as manifestations of secondary syphilis is universally appreciated. Primary syphilis of the anus has been reported infrequently. Its clinical manifestations are so bizarre that in most instances early diagnosis is obscure or incorrect. The true nature of the condition at long last becomes evident only through the appearance of remote secondary syphilides.

A case in point is that of a married business woman, age 40, who complained of pain and discharge at the anus for about 10 days. A localized indurated, superficial perianal abscess was found, the origin of which appeared to be in a fissure at the anterior commissure of the anus. Inguinal glands were not enlarged and the Kline test, on admission, was negative. The lesion was excised en block under caudal anesthesia and the patient was discharged from the hospital on the fifth postoperative day. Subsequent course was characterized by inordinate induration of the wound, pain and poor healing as evidenced by sluggish granulation tissue. Some three weeks following operation patient remarked that her hair was falling out rapidly and that she felt poorly. Several areas of alopecia were indeed noted on examination together with mucous patches on the fauces and a generally disseminated skin rash. Kline, Mazzini and Wassermann tests were now four plus. All luetic manifestations as well as the operative wound healed rapidly following adequate antiluetic therapy. On direct questioning the patient readily admitted submitting to anal coitus with her husband, a merchant marine petty officer, just previous to the onset of her anal symptoms. Her husband was called for examination and was likewise infected with secondary syphilides. He admitted observing a slight "irritation" at the frenum some time after venal exposure in his last European port.

The most common primary lesion of anal syphilis is a superficial erosion, frequently multiple, with indurated edges and slight circumferential erythema. It is commonly misdiagnosed as an anal fissure or ulcer. The inguinal nodes on the same side as the primary sore are enlarged and tender. Inguinal nodes are enlarged bilaterally in cases with contralateral "kissing" ulcers but may show no enlargement when the primary lesion occurs in the midline at the anterior or posterior commissure. Inguinal adenopathy is important as a diagnostic aid. Darkfield examination of the anal lesion is often negative due to secondary contaminants but occasionally treponema can be demonstrated in material aspirated from the enlarged inguinal nodes. Repeated serological examination is mandatory in all atypical anal lesions as it may be the only means of establishing the diagnosis.

Nine cases of primary anal syphilis were personally (G) seen in the last 3 years. Seven were in males, and 2 in females. All but one patient admitted passive rectal coitus. In 7 cases the specific nature of the lesion was not suspected by the referring physician. The local lesion healed in all cases following antiluetic therapy. Primary syphilis should be considered and sought for in all atypical anal or perianal lesions of recent origin especially when associated with inguinal adenopathy.

Foreign Bodies in the Rectum

The literature is replete with case reports of foreign bodies which have been voluntarily inserted into the rectum and lost, thereby entailing operative removal. Candles, pop bottles, fruit, electric bulbs and tableware are among the most popular. The psychogenic connotation of the rather wide spread practice of inserting a phallic object into the rectum is obviously masturbatory and requires no further comment at this time.

Summary

Certain proctologic syndromes are related to emotional tension states which manifest themselves by projection through anal erotic impulses. The importance of the anal phase of the child's development, and the fixation or regression thereto in certain neurotic or perverted individuals is briefly considered.

The psychosomatic concept of the mucous diarrhea, hemorrhagic and ulcerative colitis as an expression of deep feelings of guilt, fear or aggression is presented. Likewise spastic constipation, dyschezia and proctalgia fugax and their role as manifestations of "retention phenomenon" are offered for consideration. Neurogenic pruritis ani as a manifestation of anal masturbatory impulses is being described with increasing frequency. In this group is classified those anal masturbators who utilize foreign bodies as the active agent.

Venereal disease of the anorectum and its widespread occurrence in overt "anal fixated" homosexual males is assuming increasing importance. Even in women, apparently, passive anal coitus is not uncommon and must be kept in mind as a source of venereal disease of the anorectum.

Illustrative case reports are briefly presented.

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Discussion

Dr. Alfred J. Cantor (Flushing, N. Y.):—I should like to compliment Dr. Granet and Dr. Hammerschlag upon an excellent presentation of a difficult subject. It is generally recognized, not only by the specialist but also by the general practitioner, that functional disorders of the colon are frequent. It has been truly said that the gastrointestinal tract is the "sounding-board of the emotions". The psychiatrist well knows that the gastrointestinal tract provided the earliest evidences of relationship between psychic factors and organ dysfunction.

The very high incidence of functional disorders of the colon is well known. Twenty-five per cent of four thousand cases studied by Spriggs, thirty-nine per cent of three thousand patients examined by Kantor, thirty per cent of three thousand studied by Jordan and Kiefer, and forty-six per cent of four hundred sixty-two cases studied by Bockus and Willard, demonstrated functional colonic disorders. That is a high percentage. The psychogenic origin of the dysfunction is usually completely overlooked.

As Drs. Granet and Hammerschlag have pointed out, and as the recent literature has emphasized, certain proctologic syndromes are directly related to tension states. The projection may be through anal erotic impulses.

The relationship of mucous colitis to the emotions has been well established. However, a relationship between emotional tension and ulcerative colitis is also suggested. I would be interested in having Dr. Granet and Dr. Hammerschlag describe their concept of the physiology involved in this latter relationship.

The etiology of proctalgia fugax is unknown, as the authors have indicated. It is interesting to observe that Dr. Thaysen, in his original paper describing this disease, which appeared in the Lancet in 1935, stated, "I think I can say definitely that none of the above-mentioned patients were neurasthenics". The recent impetus that has been given to the literature on psychosomatic medicine has brought proctalgia fugax within the realm of this field. The same can be said for many cases of pernicious pruritus ani. However, we must be cautious. We must recognize that there are extensive possibilities for ramifications of theory, and dangers in such hypotheses in all cases where a specific etiologic agent has not been discovered. We must remember that many bizarre theories were offered for the origin of tuberculosis before the tubercle bacillus was discovered. The same may be said for syphilis and practically all of the other bacterial diseases. It is easy to theorize. The value of setting up such theories lies chiefly in the subsequent knocking-down. We must investigate and evaluate. We must realize that in any individual case there are many factors at work, including an emotional factor. In many cases, as the authors have pointed out, the emotional background may be the major factor. However, we must not become faddists in medicine.

I should like to say a few words about my own operation of tattoo-neurotomy in pruritus ani. When we are dealing with a pernicious pruritus ani that has not responded to conventional methods of treatment, even though there is a psychogenic background, I believe that the patient should be subjected to a tattoo-neurotomy. Of course the psychiatrist should be consulted at once. Until the psychiatric background is fully disclosed and treated the patient cannot expect permanent cure. However, before that is done the patient demands immediate relief. A tattoo-neurotomy will provide such relief.

Time does not permit discussion of my own concepts of the mechanisms involved in psychogenic pruritus ani of emotional origin. However, regardless of theory these patients deserve immediate relief and adequate psychiatric consultation.

The relationship of venereal disease to homosexuality is well known. I have emphasized this in my own textbook, "Ambulatory Proctology", particularly with relation to lymphogranuloma venereum. Transmission, as we know, is chiefly through sexual contact. This contact may be normal coitus, buccal coitus, cunnilingus, suctio penis, etc. We would do well to recognize that a rectal thermometer employed in cases of gonorrheal vulvo-vaginitis may result in a gonorrheal proctitis. Enema tips may act similarly, and the examining finger is responsible for occasional cases when a rectal examination follows vaginal manipulation without change of gloves.

The psychogenic implications of the introduction of foreign bodies into the rectum is very interesting. The authors have made a very good point, and it should be recognized that these patients require psychiatric management as well as proctologic attention.

Summarizing, I believe that the authors have provided an excellent and a stimulating paper.

Dr. Saul Schapiro (Brooklyn, N. Y.):—When I received my copy of the paper you have just heard, I was at first puzzled by its title, "Anal Eroticism". Curiosity lead me to the dictionary and there was no mistaking it. It did pertain to love. And so I thought, here, we indeed have something new—the tendency or character to love, enjoy or derive pleasure from a rectum.

I read and re-read the paper and then realized that an important message was being delivered. I hope this paper will be published early so that you can all have the opportunity of properly digesting its contents.

I don't intend to become involved in the psychiatric angle of the paper because I am unfamiliar with the complicated ramifications of psychiatry. However, the authors, in a very brief way, have convinced me of the relationship of the so-called "anal and genital phase" during the development of the child and the adult's fixation of neurosis and perversion.

Anxiety, tension and emotional states we all now know result in bodily illness of a physical or nonpathological nature. That is psychosomatic medicine and I, for one, am certain that the gastroenterologist and proctologist must be ready to apply this science to a greater number of patients. No longer can we dismiss the complaints of the patients because we cannot find any organic evidence to support the symptom complex. Even though the physical distress of these patients becomes pronounced it is difficult for the patient and even for the doctor to conclude that the cause may be emotional.

I could cite innumerable examples of the various types or groups that the authors have mentioned. Two outstanding groups of these patients are those with ulcerative colitis and pruritus ani. One adult, an extreme example, enjoyed the cramps of his ulcerative colitis because, he interpreted this in the terms of sexual intercourse. This patient was cured by psychiatry. Another patient with a severe type of pruritus ani was relieved only by very frequent sexual intercourse.

All of us have encountered the problems associated with the care of the patients with the unexplained high rectal pains, those with persistent coccygeal neuralgia, others with pressure discomforts of rectal constipation, some with fixed uncompromising cancerophobia, many with the established rectal urge or tenesmus, and others with imaginary or purposeful rectalgias. All these disturbances, and others, should receive our consideration under the general heading of psychosomatic medicine—which aims at discovering the precise nature of the relationship between emotional life and bodily illness. The paper is a timely one, and the authors are to be congratulated for their efforts and for the excellent manner of presentation.

Dr. H. Nathan (New York, N. Y.):—I enjoyed listening to the paper of Drs. Hammerschlag and Granet and thank you for the privilege of being invited to discuss it.

I have had an unusual experience in the observation and treatment of patients with anal eroticism. The complications I have seen, seem to be rare if you look at the literature. They do not seem to be rare if you talk to the surgeons, familiar with colon and rectal surgery. These cases do not concern the sexual satisfaction which patients try to find in homosexual, anosexual life and in masturbation with the use of the rectum. They are surgical consequences of such use and secondary complications.

The first patient, the wife of a psychiatrist, was admitted several time to the hospital. Both family history and own history, show unusual sexual activity. Several cases of suicide had occurred in the family, although both the patient and the husband stated that their sexual life had been normal and well balanced, sufficient signs could be found that it was not so. Shortly after successful operation for an incarcerated femoral hernia, the patient was admitted with severe rectal bleeding. On proctoscopic examination, a tear about 1 cm. long and 3 mm. wide, 5 cm. above the anus was noticeable, from which an extensive arterial bleeding could be noticed. Careful hemostases was done, the patient constipated for a few days and discharged in good condition. No explanation could be found, except that the patient had used some enemas, because of constipation. A few weeks afterwards, the patient was readmitted in condition of severe shock, with the bleeding point much higher, which made the hemostases very difficult. Patient strictly denied any traumatisation. Granulation tissue around the wound was excised and reported of inflammatory nature with many eosinophiles. Smaller bleedings were seen in intervals and because of the development of polypoid tissue around the bleeding area, several excisions were done, all with the same result. From the beginning, I was of the opinion that only a selftraumatisation could be the explanation for the recurrent bleeding and the development of the inflammatory tissue with the polyposis. In consultation with several proctologists, surgeons, gastroenterologists, neurologists and psychiatrists, the point of view was not accepted. The disease was considered as a general polyposis and the advice for partial colectomy was given. I refused, to do any major procedure and advised

psychiatric treatment, but without success. Only when a new severe bleeding occurred, I had to take the patient to the hospital and had to perform a sigmoidostomy, in order to put the rectum at rest. During that operation, a careful check-up of the intestines was done and no signs for general polyposis found. After sigmoidostomy, the bleeding of the rectum stopped completely and the patient seemed to do well.

A new difficulty developed. Every time attempts were made to close the sigmoidostomy, the abdominal wound reopened. In a new psychiatric consileum, it could be proved that my presumption of selftraumatisation was right. The patient admitted the use of the colostomy opening, for the satisfaction of her sexual feelings. She called her artificial anus, "her little girl-friend" and admitted that masturbation in the colostomy opening really caused orgasm. I refused treatment without neurological cooperation. The patient had a shock treatment which improved her condition partially. A new attempt was made subsequently to close the colostomy, but it was unsuccessful. The patient tried to commit suicide and after discharge from a neurological institution, she was brought to another mental institution. Another shock treatment was given, and subsequently the sigmoidostomy closed at the same time with the bilateral oöphorectomy for castration. The abdominal wound was put in a plaster cast for several weeks, in order to assure undisturbed healing. The postoperative course was uneventful, the patient seems to be well now. She is not complaining about any abdominal distress, no bleeding has recurred, and patient seems to lead a normal life.

The second case concerns a patient, a 48 year old white male. When admitted to the hospital, he gave the story of an unusual accident. He stated, that he fell down cleaning the basement of an apartment house. A baby carriage was standing in back of him. The handles of the baby carriage were broken with sharp ends. They went through his trousers, underwear and into the rectum. He was in shock. The examination revealed, that the handles of the baby carriage had reached the rectosigmoid and penetrated the anterior wall of the rectosigmoid and the posterior wall of the bladder, close to the Douglas pouch. Because of the unusual "efficiency" of the penetration through his clothes, rectum, sigmoid, bladder, the question of selftraumatisation was considered, but the patient strictly denied it. Surgery was done immediately, a) Cystostomy with repair of the bladder and b) diverting sigmoidostomy, to eliminate bowel movement. The postoperative course was for a certain time uneventful. After the cystostomy wound had healed spontaneously, following the removal of the catheter, attempts to close the sigmoidostomy were unsuccessful and it seemed quite suspicious that the patient was manipulating with his sigmoidal wound. Finally we succeeded in closing it. Two weeks after discharge from the hospital, the patient was readmitted to another hospital with a broken needle in his colostomy scar and another piece of a needle in the vicinity found by x-ray examination. The patient was admitted again for closure of the colostomy, always with negative result. Several times, selftraumatisation by digital manipulation of his artificial anus could be proved. Psychiatric consultation agreed

with the findings but did not give any suggestions for therapy. Patient was finally discharged with the colostomy still functioning.

The last case is a patient who was admitted to the hospital with signs of acute intestinal perforation with peritonitis. On exploration, a hole in the sigmoid was found without any inflammatory reaction in the vicinity. The operating surgeon was puzzled about the unusual finding. Because of the experience in the two previous described cases, I expressed the suspicion that the perforation may have been caused by self-afflicted traumatisation in a sexually perverted person. After the operation, the patient was investigated and admitted to be homosexual and to have introduced instruments into his rectum for sexual satisfaction. The postoperative course was complicated again. The wound of the intestine was closed primarily and antibiotics were given. No colostomy was done, but the wound did not heal primarily because the patient was always playing around with it. After dressing the wound with a cast, the wound healed.

These three cases may be an interesting illustration to the excellent presentation we have heard by Drs. Hammerschlag and Granet, and show, how we surgeons may encounter both diagnostic and therapeutic difficulties caused by psychiatric complications. They are really very difficult and it is hard, to deal with them.

Dr. William Ostrow (Brooklyn, N. Y.):—I have enjoyed listening to Dr. Granet's and the other discussers' presentation of this very interesting subject of Anal Eroticism. I would like to call attention to a phase of Anal Eroticism in which the patient is introduced to a means of gratification of his perversion by physicians. Frequently rubber rectal dilators are prescribed for treatment of hemorrhoids. These dilators come in various sizes and the patient is instructed to use increasingly larger sizes until his hemorrhoids disappear.

Recently two cases came under my observation, where one patient was using the rectal dilators for six years, and the other, for four years. When the patients were told that there was no longer any necessity for them to use this remedy, they insisted that it contributed to their well-being. One of the patients had a well-marked papillitis and cryptitis with bleeding. He stated that he used the dilators twice a day. The other patient had a patulous anus with atrophy of the papillae and he claimed that the only way in which he could induce a bowel movement was by friction of the large dilator against the rectal mucosa.

A careful history revealed that neither of these patients showed evidence of perversion before he began to use the dilators. One of the patients admitted that he experienced gratification after prostatic massage.

I wonder whether in these two cases the physicians did not inadvertently contribute to the development of Anal Eroticism.

Dr. Wm. Lieberman (Brooklyn, N. Y.):—I wanted to suggest that in my opinion many of these cases of anal eroticism may be brought about in early childhood by the action of the mother in her excessive interest in early toilet training. It should be remembered that the spinal cord tracts of a child are not fully my-

eliminated until one year of age, and coordination in moving the bowels should not be taught before that time. Many mothers start the training of their children as early as six months, usually because some friend is boasting about how well her child is trained and how clean he keeps himself.

I think it is generally agreed that such training should not start before ten months or a year of age. By being too strict with this type of training, the child is given feelings of hostility towards its mother and feelings of aggression which may later transform themselves into masochism and sadism in adult life. Full control should not be expected before the age of one and a half to two years.

Another result would be that the child might become constipated by being afraid to move its bowels even at the proper time, because of the strictness of the mother in toilet training; as a result of this, suppositories and enemas are given which may arouse some sensual satisfaction and as a result of this, the child may desire to continue such feelings by remaining constipated, which would also satisfy feelings of hostility by refusal to do as the mother requests.

In regard to pruritus ani, although the pendulum of medical thought has swung to psychosomatic causes I would stress that, first, a thorough search should be made for organic etiology in pruritus ani, because I find that the vast majority of these cases can be explained and cured on an organic basis, before we resort to the psychiatrist for treatment of this type of case.

Dr. Ernst Hammerschlag (New York, N. Y.):—I think Dr. Granet and I can be very much gratified with the discussion because it indicates that this audience has shown an extremely good understanding of the idea we had when we presented this paper.

It may interest and even amuse Dr. Schapiro to hear that when we had finished this paper and were looking for a title, Dr. Granet suggested the title under which it goes. I had certain hesitations because I thought it might be too provocative and might create certain misunderstandings, but he reassured me and I gave in because, as a matter of fact, anal eroticism is not meant to be something pleasurable; it is a technical term which is being widely used in psychiatric and especially in psychoanalytic literature, and for this reason we chose it.

Dr. Cantor said something about statistics. He gave very large statistics and they prove our point that in a very great number of cases the psychogenic factor has to be considered.

His question about our concept of interrelation between psychogenic factors and ulcerative colitis is rather difficult to answer because it is one of these subjects where psychiatrists on the one side, and internists on the other side, stick to their points and do not want to give in. But, as I have been an internist for twenty years and only in the last five years switched to psychiatry, I still have my feet on the ground and my eyes open. I have seen quite a number of cases of ulcerative colitis, and in practically every one of them there was some kind of psychiatric disturbance.

To answer Dr. Lieberman's question, these patients were frequently only children, or they had a too meticulous toilet training, or have been overprotected or have been spoiled, so that in early childhood they developed some kind of faulty habits in their bowel movements. Ulcerative colitis is an organic and very severe disease, and it would be foolish to say that at the very late stage one should start to treat the patient purely psychiatrically, although we have had patients at Mt. Sinai who were already designated for operations and who shortly before the date for the operation was set, were seen by a psychiatrist there. In a few instances it was possible to save those patients an operation which, as you all know, is a very important thing, for a patient with half a colon or without a colon is really an invalid.

Dr. Nathan's cases were very interesting, and he proved what we tried to say. Dr. Ostrow asked about the various therapeutic procedures used by physicians which may "create anal eroticism". He is absolutely right in describing these patients, but I think that one can explain the dynamics in these patients in a slightly different way. They have been previously subconsciously anally eroticized, and they have developed the symptoms and have gone to see a doctor just in order to get these treatments. The subconscious drives of those patients have created this urge to undergo such treatment rather than that such treatment should have provoked their subsequent anal eroticism.

If I am allowed to give a very short case history, it may prove this point to you.

I had the opportunity to see a patient at City Hospital a few weeks ago. This was after we had finished our paper and I couldn't add this case history to Dr. Granet's really beautiful clinical material. This patient was admitted because he had a high temperature and slight discomfort in the rectum. The resident, an astute young man, told me that he had examined him, could not find anything very definite, but that the patient made a very peculiar impression on him.

I took a short history on this patient. If I tell you it took only fifteen minutes to elicit this material, I don't want you to think that one can always get as much out of a patient in such a short time. It usually takes much longer. He was a man in his forties; as a young boy he had been living under very miserable conditions and, as he stated, for purely economic reasons, he gave in to the advances of various older men and submitted to anal intercourse. He was at that time thirteen or fourteen years old and these experiences lasted several months or years. He gave it up later and again, had an extremely erratic life, never stayed in a city very long, always traveled around, never had a permanent job, and only intermittently had heterosexual relationships.

He later found a job in a hospital as a male nurse. (One finds occasionally that male nurses are sometimes, rarely overt, but more frequently latent homosexuals who find some gratification in being able, without committing any crime, to deal with male bodies.) This man happened to have nursed a patient who had just undergone a colectomy for a carcinoma of the colon.

He apparently had accumulated a considerable amount of guilt feelings about his nursing, and so he, feeling guilty, developed a phobia. He feared that he might develop a carcinoma, and he did a very peculiar thing. He put a rubber on two of his fingers, started to examine his rectum digitally (that answers a question of one of the discussants) and he tried to find out if he had a rectal carcinoma, not realizing that he was gratifying his urge for anal masturbation. He found no carcinoma but he killed two birds with one stone, he gratified his anal eroticism and simultaneously puncturing himself through the examination, subsequently developed a perianal abscess. He was then admitted to the hospital.

Later he developed peritonitis but he is recovering now.

I think this case really shows in a nutshell the whole psychodynamics of this problem: A man has been exposed to homosexual passive experiences in his youth, has given it up but subconsciously couldn't forget it. He feels constantly guilty about it and nevertheless seeks in his profession some type of gratification. In order to get rid of his renewed guilt feelings he develops a phobia, as a consequence of his phobia examines himself, hurts himself, and nearly dies.

It is almost as dramatic as a Greek tragedy, with pleasure, crime, guilt and punishment.

Before ending, a final word of warning about this approach which, fortunately enough, is shared by more and more physicians. But that implies a certain danger. The fact that we physicians have a deeper insight into the dynamics of these processes does not imply that the patient has an insight into those dynamics. We are too easily inclined, when we sometimes find a connection between the patient's toilet training, his latent homosexuality and his anal discomfort, to explain it to the patient—and that is a mistake made quite frequently, especially by physicians who are not trained in psychotherapy.

Psychotherapy is really therapeutic dynamite, and if it is not handled very carefully, it can do much more harm than good. We must not forget that many of these patients develop all those symptoms, like pruritus, hemorrhoids, and so forth, as a kind of conversion symptom, and the conversion symptom is meant to drain anxiety, to help the patient to get rid of his anxiety in this kind of disguised, camouflaged way. When you tell the patient too much, you can throw him into a panic and even into a psychotic episode, and for this reason this approach, as important and good as it is, must be handled with great care.

THE HEMOLYTIC ESCHERICHIA COLI AS A CAUSE OF DIARRHEA*

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Medical literature contains very few references to the presence of hemolytic escherichia coli in the human intestine. From the standpoint of its being an etiological factor capable of producing disease, the references are very meagre. That certain strains of escherichia coli have hemolytic properties has been recognized for many years and often the hemolytic E. coli is the only organism found in urinary infections and in the gastrointestinal tract. There is a difference of opinion as to whether the presence of this organism has any definite clinical significance.

A moderate to severe depleting unexplained or idiopathic diarrhea occurs with greater frequency than is indicated in medical literature. That many of these cases apparently do not fall into either the psychosomatic group or the usually recognized specific dysenteries is indicated by the evaluation of a series of patients in which hemolytic E. coli was found to predominate on stool culture. This organism is considered to be the etiologic factor, and the response to therapy directed toward its eradication is suggestive, although not completely worked out to conform to Koch's postulates. In addition to its presence in humans, veterinarians have found hemolytic E. coli to be the causative agent in that serious and often fatal malady of young calves, known as "White Scours".

The evaluation of the 190 patients reported in this series, would indicate that it is an etiological factor in the production of diarrhea since 152 of the 190 showed the presence of this organism, either predominating, or making up the entire flora of the intestinal tract. Whereas only patients whose chief complaint was diarrhea are included in the series, culture of the stools of other patients who had digestive symptoms not referable to the colon and also a number of apparently normal individuals, did not show the presence of hemolytic E. coli.

Niles and Torrey[1] report a series of twelve normal adults. Three or 25 per cent gave positive culture for B. coli hemolyticus and nine or 75 per cent were negative. There were seven cases of nonspecific diarrhea reported, all of which showed B. coli hemolyticus. Dudgeon[2] in 1926 stated: "In my experience, when an abundant growth of hemolytic colon bacilli is obtained from the feces, there is a general toxemia together with symptoms relevant to the intestinal tract, which may be controlled by specific hemolytic colon bacillus vaccines. This line of treatment in my hands has given better results than I have obtained with vaccine therapy in any other form of intestinal infection. Dudgeon, Wordley and Bawtree have also drawn attention to this fact and considerable experience has led me to believe that this view is correct. The diarrhea and toxemia may subside, although

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resistant to other forms of treatment and certainly vaccine therapy should be employed when these organisms are isolated from the feces and the clinical condition demands it. Patients with this form of intestinal infection may show the presence of specific agglutinins of the blood."

All of the patients included in this series had a minimum of two stools at intervals, to a maximum of twenty stools during a 24 hour period. The diarrhea was most often constant. A few had alternating diarrhea and constipation; however, in the latter, the diarrhea predominated. The character of the stool was mushy, loose or watery, the watery stools predominating in about 50 per cent of the patients. Macroscopic mucus was present in a rather small percentage of the patients. Undigested food was noticed frequently. Macroscopic, microscopic and

TABLE I

Total Number of Patients in the Series

Total No Pts.		No. Pts. with Hemo. E. Coli		No. Pts. with Other Organisms (i.e. Hemo. and Non-Hemo. Strep; Stalph., Aureus and Albus, Strep. Fecalis, Eberthella Strains, Etc.	
190		152		38	
Sex		Sex		Sex	
M	F	M	F	M	F
88	104	70	82	16	22

All had a nonspecific diarrhea. The number of cases that had positive cultures for Hemo. E. Coli and those that had other nonspecific organisms is indicated.

occult blood was not found in any of the patients except those having ulcers in the colon demonstrated by direct visualization through the sigmoidoscope with or without magnification. The odor of the stool specimen and on sigmoidoscopic examination was fairly definite and characteristic, being foul, pungent, penetrating and lasting.

Sigmoidoscopic examinations were made on all of the patients after a small cleansing enema. The appearance of the mucosa varied from normal to hyperemic, congested and edematous. Some cases had definite frank ulcers confined to certain areas or levels while other cases had a generalized ulcerative process. On proctoscopic examination two patients bled so profusely it was difficult to obtain a field sufficiently clear to visualize the mucosa. The extensive ulceration and bleeding would seem to be due to the virulence of the organism rather than the duration of symptoms since both of these patients gave a history of rather short duration, one of only six weeks and the other of less than one year. The mucosal

pattern and ulcers did not conform to the characteristic appearance of any of the specific dysenteries such as amebic, bacillary, etc. In fact, a careful search for amebae and cysts was made by direct smears taken from the ulcers and cultures excluded the presence of the other specific organisms at the time the patient was seen. Every effort was made in each case to rule out the specific dysenteries.

The patients in this series ranged in age from 17 months to 73 years. There was only one infant in the group, the next youngest being 13 years of age. Most of the patients were in the age group of twenty to forty years. The subjective symptoms most frequently complained of were largely referable to the gastrointestinal tract. The appetite was definitely altered, being diminished in most patients to absent in others, rarely was it increased. Sour stomach with acid eructations and belching were the most frequent epigastric manifestations. Nausea accompanied by epigastric fullness while eating occurred in about 25 per cent of these patients. Only three had vomiting. These three were seriously ill with marked dehydration.

TABLE II

AGE RANGE, NUMBER AND CHARACTER OF STOOLS, SYMPTOMS AND DURATION OF SYMPTOMS.

Age of Pts.	No. Stools in 24 hour Period.	Character of Stools	Duration of Symptoms	Symptoms
17 months to 73 years. Only one infant. Next youngest was 13 years.	Minimum of two to maximum 24	Loose, Watery to Mushy. Some contained Mucus and Blood.	Ranged from 5 weeks to 28 years.	All had Diarrhea Altered Appetite Sour Stomach Burning and Bloating in Colon. Cramping pains in lower Abdomen.

Burning and fullness which was not relieved by a bowel movement was as frequent as the chief complaint of diarrhea. Cramping pains in the lower abdomen were frequently complained of but these were rarely severe.

The systemic manifestations included easy fatiguability and joint pains, most frequently involving the finger joints, accompanied by swelling and tenderness, and was usually described as the hands and feet feeling tight and swollen giving the sensation of the gloves or shoes being too small. Headache was not an outstanding symptom. The duration of symptoms varied from five weeks to twenty-eight years and were most often of five to ten years duration.

Gastrointestinal x-rays were made of all of these patients, with few exceptions. These studies were postponed temporarily in acute cases when profuse bleeding made it unsafe to subject them to this additional trauma. The x-ray examinations were helpful in ruling out organic disease of the colon in the form of benign and malignant tumors, diverticulosis, etc.

The positive finding was the usual irritable, spastic type colon. However, it was interesting and possibly significant to note the large number having a normal appearing colon roentgenologically. A very irritable, spastic bowel would be expected with the amount of diarrhea encountered by these patients.

Bacteriology

Throughout this investigation, the routine practice has been to culture all stool specimens submitted on broth, EMB agar and blood agar, the latter both aerobically and anaerobically. Specific identification has been carried forward by fermentations, with tests for motility, acetylmethylcarbinol formation, gelatin liquefaction, and nitrate reduction. Rabbit blood has been used for the most part, but spot checks have never revealed a strain which was hemolytic for rabbit blood which was not also hemolytic for human blood.

The predominant type of hemolysis found has been similar to the beta-hemolysis of streptococci with a wide, clear, sharp zone of hemolysis. In a few instances, weakly hemolytic strains have been found with only a faint, ill-defined

TABLE III

Sigmoidoscopic, X-ray and Culture Findings.

Sigmoidoscopic Findings	X-ray Findings	Stool Cultures	
		Before Treatment	After Treatment
Varied from Normal, Hyperemic, Congested to Ulcerated.	Varied from normal to Irritable and Spastic Colon.	Hemolytic E. Coli Predominating to 100%.	Normal Intestinal flora to insignificant percentage of Hemolytic E. Coli in 85%.

zone around the colony or confined to the area beneath the colony. All of the former types tested have continued their hemolytic tendency over a period of months and for as many as thirty subculturings; some of the latter lost their hemolytic power after as few as three subculturings on blood agar. The former type is quite similar to the strains reported by Loving[3] isolated from milk.

Ruchman and Dodd[4] reported an E. coli variant which proved to be hemolytic, invasive, antigenic and pathogenic for laboratory animals. The strain was isolated from a child having diarrhea. The hemolytic strains we have investigated do not include variants based on the IMViC identification[5], but only the species identified primarily by fermentations and listed in earlier publications[6]. None of the recognized variants we have investigated have proved to be hemolytic, while hemolytic E. coli is not uncommon. We have found antibodies in the blood of patients with hemolytic E. coli infection, but never in high titre.

Anaerobic cultures have not shown a significant difference from aerobic cultures, although some of the weakly hemolytic strains seem stronger on anaerobic

plates. When there has been an intermingling of streptococci, growth percentages have been significantly different on the aerobic and anaerobic plates.

Autogenous vaccines have been prepared from hemolytic strains grown on agar slants, washed with phenol-salt solution, made up to a standard strength of approximately 2,000 million per cc. and preserved with phenol.

Complications consisted of: hypothyroidism, duodenal ulcer, hypertrophic arthritis, hypertention, fistula-in-ano, pregnancy, arrested pulmonary tuberculosis, achylia gastrica, chronic cholecystitis and glaucoma. An early cancer of the rectum was discovered five years after the patient had been successfully treated. Prior x-ray and sigmoidoscopic examinations had been negative. The patient returned thinking that she was having a return of her diarrhea.

The treatment of these patients with hemolytic E. coli infection depended on the severity of the pathological process. Most of these patients were treated as ambulatory. Those with pronounced diarrhea, dehydration and bleeding required hospitalization with supportive measures in the form of saline and glucose intravenously and transfusions of whole blood at indicated intervals.

Both the hospital and ambulatory patients were given adequate and prolonged sulfonamide therapy, including sulfathiazole, sulfadiazine, sulfaguanidine, succinyl sulfathiazole (suxidine) and sulfathalidine. Some received two or more courses; if there was no clinical response to the first, another was tried. Penicillin was employed in several patients but as anticipated, it was found to be of no value. Vaccine therapy was used after no improvement resulted from the administration of the sulfonamides or penicillin. While it produced the most satisfactory response of any of the above, the improvement was never dramatic. Rarely was improvement noted in less than two weeks, but it was gradual and fairly constant with the continuance of the vaccine. Some of the patients had severe reactions with chills and fever, headaches and generalized aching. Practically all reactions were accompanied by an exacerbation of the diarrhea which was temporary. Most of the cases that continued the vaccine over a sufficient period of time after the diarrhea was controlled remained symptom free, in that they were having only one or two formed stools a day. The gastrointestinal symptoms and systemic manifestations disappeared to a great extent.

Since sulfathalidine has become available it has been administered to a number of patients with encouraging results. The present indications, suggest that it is the sulfonamide of choice, and should be used in preference to the other sulfonamides when the hemolytic E. coli is found or suspected to be the etiologic agent. In addition to its more or less specific action, it can be administered with safety to the ambulatory patient. The dose is conveniently small being 1 gram (15 grains, two tablets) every four hours, which is not objectionable to the average patient.

A large percentage of these patients had had psychosomatic investigation and guidance without lasting benefit prior to being seen. However, they did respond and remain free of symptoms on the above regime directed at the eradication of

the hemolytic E. coli. A high caloric, high vitamin, low residue diet was used with adequate Vitamin B and C orally and parenterally. The length of treatment varied from 14 days to 18 months. Two required ileostomy. Approximately 10 per cent had recurrences, but responded to further treatment, only three cases had repeated recurrences. Cultures after treatment and subsidence of symptoms revealed a complete eradication or reduction to an insignificant percentage of the hemolytic E. coli in approximately 85 per cent of the cases.

Case Reports

Case 1:—35 year old, male, druggist. C.C. bloody diarrhea of 8 to 20 stools in 24 hours, six weeks duration. Sigmoidoscopic examination revealed numerous ulcers and profuse bleeding. No ameba or cysts could be demonstrated, cultures and agglutinations were negative for bacillary and other specific dysenteries, but showed 90 per cent hemolytic E. coli. He was hospitalized for eight weeks. There was no improvement from the sulfonamides (sulfathalidine was not available).

TABLE IV

Remedial Agents Employed.

Treatment		
Penicillin	Sulfonamides	Autogenous Vaccine
No Benefit	Helpful but Disappointing. Sulfathaladine most beneficial of all.	Gave best results but has disadvantages of Prolonged Treatment and Moderate to Severe Reaction.

Autogenous vaccine was started and in four weeks he was having one formed stool a day and sigmoidoscopic examination showed no ulcers.

Case 2:—54 year old, male, veterinarian. C.C. four to six loose stools in 24 hour period accompanied by abdominal pains cramping in character of 28 years duration. Stool cultures showed 80 per cent hemolytic E. coli, aerobically and 10 per cent hemolytic E. coli anaerobically. No other organisms or protozoa demonstrated.

Sigmoidoscopic examination revealed normal mucosa. No response to sulfonamides (sulfathalidine not available). Autogenous vaccine reduced stools to one formed stool in a 24 hour period, no abdominal pain and was able to return to work.

Case 3:—35 year old, male, machine operator. C.C. diarrhea of three to seven watery stools in 24 hours of one month's duration. Sigmoidoscopic examination showed a hyperemic mucosa, no ulcers demonstrated. No amebae or cysts. Cultures and agglutinations for generally recognized specific dysenteries were

negative. Stool culture showed 100 per cent hemolytic E. coli present. He was treated ambulatory with sulfathalidine, one gram (15 grains) every four hours, day and night.

In one week he was having two formed stools in 24 hours. In two weeks he was having one or two formed stools and has so continued without sulfathalidine for the past four weeks.

Case 4:—35 year old, female, housekeeper. C.C. diarrhea of 8 to 12 watery stools in 24 hours of 12 years duration. No ameba or cysts found, cultures of the stools and blood agglutinations negative, except for hemolytic E. coli, 60 per cent on several cultures. Sigmoidoscopic examination negative. She had taken enormous amounts of sulfonamides including sulfathiazole, sulfaguanidine, succinyl sulfathiazole in addition to autogenous vaccine. She is an arrested case of pulmonary tuberculosis, repeated x-rays of her chest and physical examination indicated that her chest pathology is healed and stationary. No acid fast organisms can be demonstrated in the sputum or stools. Tubercular enteritis was suspected but could not be demonstrated by sigmoidoscopic examination or x-ray of the gastrointestinal tract.

The blood picture and diarrhea improved, but there have been frequent recurrences. She has been observed at intervals over a period of eight years, and is classified as improved but results not satisfactory.

Summary

One hundred and ninety patients whose chief complaint was a moderate to a severe incapacitating diarrhea, 152 of which had hemolytic E. coli predominating, are reported. A high percentage of these having the hemolytic E. coli responded satisfactorily to measures directed at the eradication of this organism.

Conclusions

1. The hemolytic E. coli is capable of producing a troublesome to a profound diarrhea and severely ulcerated colon which endangers life.

2. The immediate morbidity may be extreme.

3. There is comparatively little permanent morbidity following treatment.

4. A more complete bacteriological study of the stools of patients who have a troublesome and protracted diarrhea—not having one of the usually recognized specific dysenteries, but found to have the hemolytic E. coli—will be helpful in arriving at a definite diagnosis, and adequate treatment.

The author wishes to express his appreciation and gratitude to Dr. Richard C. Neale, Dr. Walter A. Eskridge and Mr. Forrest Spindle for the untiring efforts and the enormous amount of detailed work in the bacteriological studies that has made this communication possible.

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Discussion

Dr. James W. Wiltsie (Binghamton, N. Y.):—I have enjoyed Dr. Barnett's paper very much and greatly appreciate the privilege of discussing it. One is impressed with the great amount of detailed laboratory work involved in the study of this series of 190 cases. A study such as this generally starts out as an effort to prove or disprove a hunch, or a conviction arising out of one's experience. Nevertheless, with conditions and findings favorable to the theory, one should be cautious in reasoning from effect back to a single cause or to concomitants of the real cause.

In 1930 Dorst and Morris, unable to accept the theory of multiple etiology in the group of nonspecific clinical conditions such as chronic intestinal toxemia, chronic appendicitis and cholecystitis, mucous colitis and duodenal ulcer, attempted a series of investigations aimed at finding a common cause for this varied symptomatology. They followed the bacteriological approach, first investigating all organisms which failed to come under the category of normal flora. The results were disappointing. Then normal strains were investigated and in a group of 30 selected patients, 26 showed marked sensitivity to vaccines made from these strains. B. coli communior led the field. As the patients were desensitized clinical symptoms disappeared. The hemolytic escherichia coli was not mentioned.

At the June meeting of the American Proctological Society in 1947, Dr. Joseph S. D'Antoni of New Orleans read a paper on Chronic Diarrheas in which he stated that amebiasis, shigellosis and brucellosis account for ⅔ to ¾ of all the cases of diarrhea he sees. He mentioned a number of other less frequent causes but failed to mention the hemolytic escherichia coli. Of course his work is not representative of a cross-section of the country at large. In the past 20 years I have seen in the neighborhood of 3,000 cases of colon malfunction, yet after excluding all specific and other well-recognized conditions I doubt if I have seen a dozen cases of nonspecific diarrhea. However, my work is not representative of a cross-section of the country. I doubt if Dr. Barnett's work is representative. It is entirely within reason that the hemolytic escherichia coli is endemic in Richmond and rarely found elsewhere as a cause of chronic diarrhea.

The presence of abnormal strains of the colon bacillus in diarrheal states has been mentioned by Dr. Bassler in his book on Intestinal Toxemia, and by others, but never I believe as a causative factor of the diarrhea. The hemolytic escherichia coli is not mentioned at all.

These studies are all exceedingly interesting and valuable as records of attempts to solve the functional and toxemic disorders of intestinal origin. Yet Bassler, who has perhaps done more work in this field than any other single individual says: "Unless all the work is done by one person, and not entered into practically until several years of experience have been acquired, I strongly recommend that it be not engaged in at all." Laus wrote in 1935 that bacteriology of the stool is so complicated that it is rarely accurately done, clinically.

I have tried many times to get our city hospital laboratory, one of the best in the state, to culture the stools of patients with intestinal toxemia, both in diarrheal and other conditions. The reports I have received were so unsatisfactory that I finally gave it up. It seems that to identify any pathogen and then to prove that it was the cause of the disorder in question would be a prohibitively expensive and time-consuming proposition.

Therefore, as interesting and important as these studies may be scientifically, I do not feel that they have solved the intestinal problem practically, for the most of us. In my own work I no longer try to identify organisms in cases of nonspecific infections, since I get all the practical information I need from the gross examination of the stool.

My present treatment of nonspecific infections and toxemias of colon origin is to cleanse the entire colon thoroughly by means of several colon irrigations followed by a course of an agar-kaolin preparation, antispasmodics, intestinal antiseptics, smooth diet and rest. In other words I reduce to the lowest possible degree the entire colon flora during the first week of treatment. Then as the flora is allowed to develop naturally again, pathologic organisms fail to reappear in the great majority of cases.

On the whole this paper is a valuable contribution to the literature on this subject but should receive confirmation by other workers before the hemolytic escherichia coli is accepted as a causative factor in chronic diarrhea even though it is present in pure culture.

Dr. Raymond J. Connors (Fall River, Mass.):—I want to start by saying that I wish Dr. Bassler who has done more work on this problem than any one else were here. Very few believed him, among them myself, but I was with him long enough to learn that I was making a fool of myself because of my disbelief.

I think that the escherichia coli, which is a complete group, can, by metamorphosis, become pathogenic and cause a diarrhea of the type that Dr. Barnett described. Under such conditions I think we are confronted with another case of those so-called idiopathic ulcerative colitides which we see so frequently. Whether this theory is right or wrong only time will tell.

I was interested in one of the doctor's cases which was completely brought under control with sulfathaladine. A case I have in mind had multiple fistulae between the large and small gut and the bladder and vagina. After being on sulfathaladine 7½ grams per day for a month, a necessary resection was done and the abdomen was found to be grossly contaminated with feces. Her postoperative temperature never varied other than between normal and 99 degrees. Her original trouble was caused by a marked radiation reaction following treatment for a cervical carcinoma. If there is any doubt about the value of sulfathaladine this should help disperse it but it must be used in adequate doses and the above is about the minimum.

Dr. T. Neill Barnett (Richmond, Va.):—I want to thank these gentlemen for their enlightening and constructive discussion. In view of this being somewhat of a controversial subject they were most kindly disposed.

If there is any trick in working out this condition, it is mostly the bacteriologist's work plus the guidance of the gastroenterologist. I approached several bacteriologists before finding one that consented to attempt such a complicated problem. Our idea was to see if we could find something tangible that would be of benefit to these diarrheas which did not fall into the usual specific classifications.

After getting started, two additional bacteriologists have become interested. One of these was most pessimistic, indicating it would be of questionable value since he was unable to find any references in the books or literature. After instructions regarding the technic and what we expected to find, he consented to make a try at it. I wondered just what his report would be. Several days later he called me and announced with enthusiasm: "Why, here is a stool just full of the hemolytic escherichia coli."

Nearly all of these people had had psychosomatic observation and adjustment. They didn't seem to be the ones that fell into the psychosomatic classification. They were not the tense individuals. The thing that was worrying them was that they were disturbed with their sleep and their day's work because they had to have anywhere from eight to ten bowel movements a day and, as one, a farmer who had such a constant and severe diarrhea for the past six years said, it meant that he lost some of the most valuable time with his farm work. For the past two years he has been able to carry on his farm work without having to lose a day.

Antispasmodics and other treatments, yes, I think that we need these to help out, just the same as we need helpful medical agents in the treatment of the psychosomatic individual.

Now, Dr. Connors, in regard to the ulcerative colitis, chronic ulcerative colitis, I feel that this is a group of patients that does not fall into the chronic ulcerative bowel, as we ordinarily see it. I hope this condition will work out to be more specific.

With regard to sulfathaladine, we know that sulfathaladine is one of the best sulfonamides for us to use in the escherichia group of colon organisms, and it is for that reason that I think probably sulfathaladine is going to work out and help us a great deal with these people, and I hope will in a large measure eliminate treating them with vaccine. However, we still have the vaccine to fall back on should we need it.

A CLINICAL REPORT ON THE TREATMENT OF COLONIC DISORDERS WITH POLYMOLECULAR LACTIC ACID CRYSTALS COMBINED WITH LACTOSE*

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The treatments of colonic disorders, functional and organic, are as variable as the types and degrees of the disorders. Furthermore, appreciation of the physiologic and anatomic alterations in colonic disturbances leads one to conclude that, even in the presence of known etiology, treatment at best is usually not definitive. Remissions and exacerbations are practically the rule where chronicity has developed. Prolonged functional disorders not infrequently have superimposed organic disease and vice versa. While the relationship between the two to date is not clearly defined, we must recognize that each does require distinct separate therapeutic measures. A perusal of the literature on treatment of colonic disorders reveals a marked divergence of opinions and, thereby, precludes a succinct presentation. However, some pertinent remarks are included in this communication.

There have been reports of favorable results in the treatment of some colonic disturbances with a preparation consisting of polymolecular lactic acids crystals combined with lactose***. Metchnikoff's original concept of implantation of aciduric cultures in the colon is the basis for this recent therapy. Whereas, Metchnikoff implanted the aciduric cultures, this polymolecular lactic acid preparation is designed to promote the growth of acidophilic bacteria by chemically creating a media in the colon favorable to their growth and at the same time having antibiotic action upon protozoa[1]. Walter Meyer is referred to[2] as having "shown that lactic acid provides both the pH desired and also a somewhat specific effect on potentially pathogenic organisms especially streptococcus viridens, the ameba and trichomonad". Favorable results have been reported with this medicament in the treatment of habitual constipation[3], amebic colitis[1], irritable colon[2] and idiopathic colitis[4].

An evaluation of the clinical experience with the above mentioned polymolecular lactic acid crystals combined with lactose preparation is herein presented. The study was conducted by the authors in the Gastrointestinal, O.P.D. Division of the Medical Service of the Queens General Hospital, Jamaica, New York.

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***We are indebted, and hereby express appreciation to the Professional Laboratories, New York, N. Y. for their kind cooperation in making this chemical combination available to us. They did not, however, propose its use in functional constipation.

TABLE I

QUEENS GENERAL HOSPITAL

GASTROINTESTINAL DEPARTMENT

Chart No.

Name Age Sex Nativity Occupation

Family History-Mother Father Sisters Brothers

Carcinoma- Tuberculosis-

Allergy- Diabetes Mellitus-

Personal Medical History-Childhood-Scarlet fever, Diphtheria, Rheumatic fever, Chorea, Etc.

Adult life-Typhoid fever, Peneumonia, Malaria, Lues, Neisserian infection, Etc.

Serious accidents-

Operations-Type Date Hospital

Habits-Smoking (none, moderate, excessive); Alcoholics (n, m, e); Coffee (n, m, e); Tea (n, m, e); Sufficient sleep (8 hrs.) yes-no; Exercise (n, m, e).

Weight change in past 6 months-

Chief Complaints

History of Present Illness-(Patient's own statements as to previous attacks, mode and time of onset, and development of illness).

General Symptomatology-Special senses

Circulatory

Respiratory

Genitals

Urinary

Nervous

Extremities

Gastrointestinal Symptomatology-Appetite-good, fair, poor, increased, decreased, thirsty, perverted (craving for), intolerance to ( ).

Mastication-rapid, slow, with mouth opened or closed.

Deglutition-difficulty (no, yes)-with solids, liquids, both, warm, cold, both; regurgitation (no, yes)-immediately p.c. or hrs. p.c.

Nausea-(no, yes)-a.c.or hrs. p.c.

Belching-(no, yes)-a.c.or hrs. p.c.

Heart-burn-(no, yes)-a.c.or hrs. p.c.

Vomiting-(no, yes)-a.c.or hrs. p.c.; vomitus was food, bile, blood, mucus, coffee-grounds.

Hunger-pain-(no, yes)- first attack yrs. ago; recurrences in winter, summer, spring, fall; night attacks; occurs hrs. p.c.; relieved by food, alkali.

Abdominal pain-(no, yes)-site ; radiation ; type (piercing, cutting, cramp, sense of fullness; girdle-like); degree (slight, moderate, severe); relieved by-vomiting, bowel movement, belching, passing flatus per rectum, medication.

Bowel Movement-regular (no, yes); complete (no, yes); frequency /day; medication (no, yes); incontinence (no, yes); pain on defecation (no, yes.)

Stool-Blood (no, yes); color-brown, clay, tarry, green; consistency-hard, soft, mushy; form-small pieces, cigar or ribbon-shaped; diarrhea and constipation syndrome present (no, yes).

Jaundice-(no, yes)- ( ) attacks, 1st ( ) yrs. ago, last ( ) yrs. ago.

Physical Examination-Nutrition Tongue Teeth Sclerae Skin

Neck Heart Lungs B.P. /

Weight Blood vascular Glands

Pulse Abdomen-tenderness Masses Rigidity

Liver Spleen Hernia

Rectal-Digital examination

Other findings-

Presumptive Diagnosis-

Final Diagnosis- Dr.....

NOTE: Reports of study carried out in G-I Clinic are on opposite side of sheet.

Colonic Activity

A) Constipation:—Constipation is a term loosely used by the laity. There is wide variation in its interpretation. Some patients thought constipation meant having a hard first fecal segment, having less than two bowel movements daily, having formed instead of mushy feces or if the bowels did not move once daily.

An acceptable definition for constipation is "a sensation of incomplete evacuation of the bowels and/or the period between evacuations becomes prolonged"[5]. It has been suggested[6] that "the term constipation should mean a delay in defecation which brings discomfort or worry or indigestion". Other definitions have been presented by different authors[7, 8].

It is important to bear in mind that constipation refers only to the delay of the fecal column in the colon and that "constipation" of the small intestines is nonexistent. Delay of the fecal column in the colon due to an organic defect resulting in obstruction had best be referred to as obstipation. Constipation is a functional colonic disorder in most instances. There is either atony or spasticity of part or all of the large bowel. The significance of these varieties of constipation and their influence in the treatment of this primarily functional colonic disorder becomes apparent.

B) Diarrhea:—Diarrhea is an unusual increase in the number of bowel movements with an associated looseness of the expelled feces. It is not intended, for purposes of this discussion, to include in this definition the temporary increase resulting from a medication taken for that effect. A classification of diarrhea into functional and organic groups[9] is inadequate and, therefore, is more specific when based on the etiological factors. Fradkin's classification appears at this date to be all inclusive and "is a definite aid in the understanding of the condition as well as its proper management"[10].

At this point it is not amiss to reiterate that the treatments of colonic disorders, functional and organic, are as variable as the types and degrees of the disorders. This is particularly valid in the consideration of diarrhea where the management and treatment becomes more perplexing as the condition advances. A full appreciation of the problem of the treatment of diarrhea is gained when the etiological factors and the difficulties involved in their determination are considered. These factors are divided[10] into—Protozoa, Bacteria, Intestinal Worms, Glandular Dysfunction, Mechanical Factors, Vitamin Deficiency Diseases, Allergic Factors, Metal Poisoning (Chemical and Radiation), Psychogenic Factors and Miscellaneous Causes. With the exception of Psychogenic Factors each of these groups is subdivided into from three to fourteen parts. Finally, some of the latter are redivided into from three to eight parts. This classification does not include chronic ulcerative colitis of undetermined origin, commonly referred to as idiopathic ulcerative colitis. When weighed in the light of the above mentioned etiological factors, the effect and degree of effect of implanted aciduric cultures or the chemical creation of a media in the colon favorable to the growth of acidophilic bacteria is at best problematic.

General Routine Study

Each patient admitted to the Gastrointestinal O.P.D. must be referred by the General Medical Clinic. Consequently, we are assured that practically all patients reporting to us warrant gastroenterologic survey and treatment.

TABLE II
QUEENS GENERAL HOSPITAL
OUTPATIENT DEPARTMENT
GASTROINTESTINAL CLINIC
ANTICONSTIPATION DIET

Constipation is commonly due to one or more of the following:

1. **Faulty diet.**
2. **Irregular habits.**
3. **Lack of exercise.**

To overcome constipation, form regular habits and take laxative foods in the diet.

Foods of value are:

VEGETABLES:	All kinds, especially those containing large amounts of cellulose, such as lettuce, chard, endive, romaine, cabbage, celery, spinach, onions, turnips, parsnips, peas, squash, beans, asparagus, tomatoes, cauliflower, etc.
FRUITS:	All kinds, including apples, apricots, peaches, plums, pears, grapes, prunes, dates, raisins, figs, and currants. Oranges, grapefruit and rhubarb are useful for both their cellulose and their organic acids.
CEREAL:	Whole grain cereals, such as rolled oats and shredded wheat, graham and whole wheat bread.
BRAN:	Bran is useful as a means of adding cellulose, although its long continued use is not recommended. One or two tablespoons of bran as needed may be eaten during each meal, moistened with kumyss, milk, tea, coffee or cocoa.
AGAR:	Agar is a form of seaweed. It is not digested and serves as roughage. It is sometimes eaten in the form of flakes mixed with cereals and often served as agar jelly or in biscuits, wafers and muffins. Agar jelly can be used when bran would be too harsh a stimulant.

SPECIMEN DIETS

BREAKFAST	LUNCHEON	DINNER
Stewed prunes	Creamed chipped beef	Roast Beef
Oatmeal, cream	Baked potatoes (skins eaten)	Mashed potatoes
Bran Muffins, honey	Vegetable salad	Lettuce salad
Eggs	Canned pears	Sherbert
Coffee (Sanka)	Wafers	Cake
Oranges	Cream of pea soup	Steak
Graham toast with marmalade	Fruit salad	Baked potatoes
Bacon	Date muffins	Escalloped cabbage
Coffee (Sanka)	Tea	Tomatoes
		Date pudding

A complete history and physical examination, using the illustrated form (Table I), is carried out. This is followed on subsequent visits by:

1. Fluoroscopy of the chest and gastrointestinal tract through the six hour period after the ingestion of a barium contrast meal.

2. Gastric analysis and proctosigmoidoscopic examination.

3. Blood Wassermann, urinalysis and complete blood count.

4. Examination of fecal specimen after the patient had been on a modified Schmidt diet for three days. In cases of suspected gastrointestinal bleeding, the feces are examined after the patient had been on a meatless diet for three days.

5. Whatever additional studies appear necessary after the preceding measures have been carried out.

Method and Dosage Employed

A previously described standardized clinical method[5], with slight changes to meet the requirements of this experiment, was used. Every feasible precaution was taken to avoid alteration of existing bowel activity except that which might be attributable to the medicament therein evaluated. Each patient was placed on the diet listed in Table II for a period of one week during which time all medications and also any procedures that would artificially alter bowel activity were prohibited. At the end of that week the patient was to continue the aforementioned diet for an additional three weeks and during that period he was to take one level tablespoonful of the preparation under study in one-half cup of milk or water thrice daily one-half hour before each of the three main meals.

Each patient kept a daily record of the bowel activity and shape and consistency of the feces throughout the four week study period. The record was kept on a form as in Table III. Since the diet was standardized for the entire study, any variations in the findings in the second part could be justifiably attributed to the drug under clinical observation. Our conclusions are based upon a comparison of the findings during the period when the patient was only on the standardized diet with the findings of the latter part of the study. Further, consideration was also given in the conclusions to the symptoms related by the patient before and after the use of the polymolecular lactic acid crystals combined with lactose.

The patients extended excellent cooperation by adhering to the medical and dietary regime. Unfortunately, several of the severe habitual constipation cases resorted to the use of enemata towards the latter part of their experiment.

Report

A) Clinical material:—This series comprises forty patients. Thirty-nine suffered from functional bowel activity disorders, thirty-one being females and eight males. Constipation was the presenting symptom in twenty-eight cases, while twelve patients complained principally of diarrhea. During the course of general routine study in the constipated patients the barium solution was seen, by means of the fluoroscope, to have cleared the ileocecal valve six hours after the ingestion of that contrast meal. No instances of small intestinal hypomotility of significant degree were noted.

As indicated by the diagnoses established, in only one case could abnormal bowel activity be ascribed to organic diseases:

Habitual constipation	28
Irritable colon syndrome	11
Idiopathic ulcerative colitis	1

Half of the patients with constipation as a major complaint were in the fifth to seventh decades but all of the 28 had for many years been accustomed to an ever-changing medley of popular laxatives. Fourteen patients were in the younger age groups.

The eleven cases classified as "irritable colon syndrome" had a long-standing history of intermittent abdominal cramps and diarrhea with which no accountable organic cause could be found. All were emotionally unstable and had associated symptoms indicative of vasomotor liability.

The patient who presented proctoscopic and radiographic evidence of ulcerative colitis was a young man with a history of this disease for the past few years. He was observed here during a relatively quiescent phase of the disease.

TABLE III

QUEENS GENERAL HOSPITAL

GASTROINTESTINAL CLINIC — O.P. DEPT.

Study of the effects of polymolecular lactic acid crystals combined with lactose on the frequency of bowel movements.

(A) Frequency of bowel movements while on standardized diet sans ANY medication:

Day	Number of movements	Feces: Shape	Consistency
1st.			
2nd.			
3rd.			
4th.			
5th.			
6th.			
7th.			

(B) Frequency of bowel movements while on standarized diet and using one level tablespoon of polymolecular lactic acid crystals combined with lactose before each of the three main meals:

Day	Number of movements	Feces: Shape	Consistency
1st.			
2nd.			
3rd.			
4th.			
5th.			
6th.			
7th.			
8th.			
9th.			
10th.			
11th.			
12th.			
13th.			
14th.			
15th.			
16th.			
17th.			
18th.			
19th.			
20th.			
21st.			

Chart No. ..... Name: ..... Age: ..... Sex: ..... Occupation: ....

Original diagnosis: .....

B) Clinical results:—Six of the twenty-eight habitually constipated patients reported varying degrees of satisfactory results. Their reported improvements were based upon evacuation of soft stool without voluntary straining during the act of defecation. As mentioned previously, several of the more stubbornly constipated individuals resorted to enemata during the latter part of the study. Twenty-two experienced no relief.

Four of the irritable colon cases presented neither diminution of stool frequency or relief from abdominal cramps. One patient in this category experienced

marked improvement by the reduction of stool frequency. The remaining six experienced slight to moderate improvement.

There was no reported change in the symptoms or frequency of defecation by the idiopathic ulcerative colitis case. Reexamination with the proctosigmoidoscope revealed no evidence of improvement at the completion of the therapy.

Discussion

The series herein reported is admittedly too small to justifiably reach conclusions. However, we have been unable to corroborate, in this study, previous reports regarding the marked clinical efficacy by chemically creating a media in the colon favorable to the growth of acidophilic bacteria with the use of the polymolecular lactic acid preparation employed in this evaluation. The effect of polymolecular lactic acid crystals combined with lactose in colonic disturbances has been predicated upon the benefits derived from lowering the pH of the bowel and, thereby, favoring the growth of aciduric bacterial flora. It has never been demonstrated, however, that the cause of habitual constipation, irritable colon or idiopathic ulcerative colitis is related to aberrations of intestinal pH. Such changes, if present, are probably of secondary importance and treatment directed to their correction can hardly be expected to appreciably alter the clinical course.

The genesis of chronic constipation in the large majority of cases can be traced to faulty habits, primarily the failure to assign adequate time to defecation. This is all too frequently compensated for by resorting to laxatives, the necessity of which progressively increases. In the aged, the above factor is abetted by loss of abdominal muscle tone, sedentary mode of life and possibly by mesenteric arteriosclerosis with its attendant impairment of intestinal response to physiologic stimuli.

While the role of food sensitivity, achlorhydria and cryptogenic infection must be carefully evaluated in all cases of the irritable colon syndrome, the neurogenic factors remain as the commonest single cause of this clinical entity.

The etiology of nonspecific ulcerative colitis is as yet unknown. It could hardly be expected that favorable results during its treatment with polymolecular lactic acid would be due to the creation by the latter of an environmental condition in the colon inimical to hostile bacteria, particularly streptococci. It must be noted that to date the use of a combination of sulfonamides, penicillin and streptomycin has failed to appreciably alter the course of this disease[11, 12]. This combination does reduce the bacterial count of the feces.

Summary

Our results with the use of polymolecular lactic acid crystals combined with lactose in a series of forty cases of chronic constipation, irritable colon and/or idiopathic ulcerative colitis are reported above. Six of twenty-eight patients were in varying degrees relieved of constipation; seven of eleven cases classed as "irritable colon" experienced variable degrees of symptomatic improvement, while the one patient with ulcerative colitis was not benefited from this type of therapy.

Conclusions

1. In this study with polymolecular lactic acid crystals combined with lactose over a period of 21 days we have not been able to attain the striking results in functional constipation and/or diarrhea patients as reported heretofore by other observers.

2. Of 39 patients suffering from functional colonic disorders 33.3 per cent were benefited from slight to marked degrees. The benefited functionally constipated patients comprised 21.4 per cent of the 28 under study. Of the 11 patients that had functional diarrhea 63.6 per cent improved with only one case having had a marked improvement. The idiopathic ulcerative colitis patient presented no changes.

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DIAGNOSIS OF CARCINOMA OF THE RECTUM BY CYTOLOGIC STUDY

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Introduction

It has long been my contention that early diagnosis, and consequently early therapy, is one of the most important factors in the management of malignancy. It must be obvious that unless the diagnosis is made in the early developmental stages, very little beyond palliation can be expected from therapy.

There is usually a considerable interval between the time of the patient's first visit to the physician and the time of operation or radiation therapy. No one knows the point of time at which metastasis occurs. Every effort should therefore be made to shorten the time between the initial consultation and the ultimate therapy.

Even under the best of circumstances there is a delay between the time biopsy is taken, and it is reported, the patient is ultimately hospitalized and prepared, and therapy instituted. To shorten this time interval, and to provide an additional diagnostic measure, I have adapted the cytologic smear technic to the study of rectal neoplasm.

This method of diagnosis has been developed initially by Papanicolaou and his associates for the study of cellular details of vaginal smears[1, 3-12]. In a sense it has revolutionized the diagnosis of early pelvic carcinoma in women.

In the vaginal smear technic, vaginal fluid is aspirated and exfoliated cells are studied. The exponents of this method believe that the vaginal smear may be considered an accessory or preliminary method of diagnosis, with the final decision being based upon a study of biopsy specimens. In the management of suspicious neoplasms of the anus, rectum and sigmoid bowel, within reach of the examining instruments, a more fortunate situation exists. The examiner is not dependent upon exfoliated cells. Curettage biopsy can be performed. Thus, instead of relying upon a few cells for diagnosis, actual tissue sections are curetted from the lesion. Diagnosis can therefore be final, at least as to the presence or absence of malignant change in the tissue section removed. This diagnosis can be made without delay if the tissue removed is studied by the conventional Papanicolaou Stain technic.

Technic

Let us consider first the method of obtaining specimens. In the diagnosis of uterine cancer by the vaginal smear technic a glass pipette is used to remove a specimen from the vagina by means of pressure suction. Material thus obtained is not removed from a specific area, or from a lesion under observation. It is removed from the vaginal vault. This technic has been employed elsewhere in carcinoma of the rectum by MacKenzie and Hecht[2]. In their case smears were taken by aspirating material from the unprepared rectum by means of a bulb

pipette, and the slides were stained by the standardized Papanicolaou method. It should be observed that in this case the patient was sigmoidoscoped on April 16, 1947, *a lesion was seen*, and smears were not taken from the rectum until April 21st, five days later. The patient was operated upon on the date of cytologic smear diagnosis. This case is important inasmuch as it illustrates the application of the exact vaginal technic, described by Papanicolaou, to the diagnosis of carcinoma of the rectum. However, the technic was not here employed to reduce the interval between the time of initial examination and the time of diagnosis (and therapy).

The aspiration smear could be so employed but the incidence of positive diagnoses in rectal pathology would be very small, and therefore the method would be of limited application. Further, inasmuch as the lesion is directly accessible to the examiner, there would be little point in using smear aspiration in place of biopsy.

Therefore, the approach should be directed toward obtaining an adequate tissue specimen directly from the lesion.

This is best accomplished at the time of sigmoidoscopy in the following manner. Any biopsy instrument may be employed. A tissue specimen is removed in the conventional fashion from the clinically suspicious area of the neoplasm. Several specimens may be required. These specimens are immediately smeared upon clean glass slides. The tissue is pressed firmly against the slide by means of forceps or gauze, and is then smeared back and forth the length of the slide. In this fashion a relatively thin smear is obtained. The remaining tissue is placed in formalin for conventional biopsy study.

The slides are immediately plunged into a solution containing equal parts of 95 per cent alcohol and ether. They are kept in the alcohol-ether solution for approximately five to fifteen minutes for fixing. A paper clip is attached to the end of the slides to keep them from touching each other in the bottle, and smearing the specimens. The slides are then rinsed successively in 70 and 50 per cent alcohol and finally in distilled water. They are then placed in Harris Hematoxylin Stain for one and one-half to two minutes. The slides are then well rinsed in distilled water.

They are next immersed in a solution of 97 cc. of 70 per cent alcohol to which has been added 3 cc. of stronger ammonia water. After one minute in this solution the slides are successively rinsed in 70 per cent alcohol (two changes), 80 and finally 95 per cent alcohol. The next stain immersion is in OG 6 for three quarters of a minute. Slides are again rinsed eight times in each of two jars containing 95 per cent alcohol. The final stain immersion is one and one-half minutes in EA 50. Once again the slides are rinsed eight times in each of two jars containing 95 per cent alcohol, and one jar of absolute alcohol. The final rinse is in xylol, and the slides can then be mounted in Gum Damar, Canada Balsam or Permount.

Nuclei will be seen to stain dark purple, basophilic cells will stain green or blue green, acidophilic cells will stain from pink to orange, and erythocytes stain orange-red.

The slides are ready for immediate study, and a diagnosis can thus be made in a matter of minutes after the initial examination.

The histopathology will vary, of course, with the nature of the tumor, and with the stage of development. The tumor cells will reveal exactly the same changes to be expected in any biopsy study. If the proctologist has not had adequate experience in tumor microscopy the pathologist should be consulted at once. It should be observed that the histologic variety of the neoplasm may not be clearly evident. However, the diagnosis of malignancy can be made, and the final classification established later through conventional biopsy study.

Conclusions

A direct tissue smear technic is described for the immediate diagnosis of rectal carcinoma. Tissue is taken directly from suspicious areas, and is immediately smeared upon glass slides, stained by the Papanicolaou technic, and examined microscopically. The usual cellular characteristics of malignant degeneration are readily determined in this fashion. Thus, a rapid diagnosis of malignancy can be made.

If sufficient tissue is available, a conventional biopsy study should also be made by the pathologist. This technic offers more than a preliminary aspiration smear study. *An immediate, positive diagnosis of malignancy is thus made possible.* The conventional biopsy study is employed merely to complete the record with regard to the exact classification of the tumor.

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SOME ASPECTS OF PROCTOLOGY IN BRAZIL

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Proctology, as a specialty, is a relatively recent development in Brazil.

About 1915, Dr. R. Pitanga Santos began to practice proctology in Rio de Janeiro, and for ten years he worked alone in this speciality, struggling against many unfavorable factors. He is one of the best known Brazilian proctologists, by virtue of his original work in proctologic surgery.

About 1925, Dr. A. Sodre, one of Dr. Bensaude's Assistants, practiced the specialty in Rio; Dr. A. Lima did the same in Pernambuco, Dr. F. Salazar in Bahia; Dr. Ribeiro da Silva and Dr. E. de Oliveira in Sao Paulo. At the same time, Dr. S. d'Avila in Rio, and Dr. L. Sodre in Sao Paulo, also began to specialize in proctology. Dr. Pitanga Santos has devised many special instruments and original surgical methods of treatment, which are in common use.

A few contributions and studies originating in Brazil will be mentioned.

Dr. Velho da Silva's reflex in the physiologic process of defecation:—Physiologic studies were made on the process of defecation, seeking to explain the continuity of the bowel movement in the last phase, clearing up the question of the relationship between the proximal portion of the large bowel and the rectal segment.

Based upon Bergman and Lanz, Holsknecht, Hertz and Lurge's work, Dr. Velho da Silva suggested a so-called rectocecal reflex, indicating physiologic relationship between the cecum and the anorectal segment.

The passage of the feces through the anal canal stimulates the cecal region, promoting peristaltic contractions in the cecal portion, which acts as a factor in defecation. Neurovegetative connections of the cecum to the sigmoid colon and rectum are responsible for the rectocecal reflex. Experimental work was done by Dr. Velho da Silva, who through x-ray, accurately observed the contractions of the cecum immediately after the introduction of a small rubber balloon into the rectum.

The rectocecal reflex tends to explain many types of constipation, in which the physiologic action of the reflex is changed. A typhopathia can produce constipation. Rectal disease also can be the causative factor of a clinical cecal picture, and many patients who were operated upon for an appendicular or cecal condition secured relief only after treatment of the pathologic rectal condition, that was subsequently recognized as the cause of the illness.

Pitanga's proctoscopes and special syringes for sclerosing hemorrhoidal injection:—Dr. Pitanga's instruments as well as his technic of hemorrhoidectomy, are of interest since they are frequently used by Brazilian specialists.

New types of proctoscopes and anoscopes were devised by Pitanga, for the purpose of simplicity in manipulation. Pitanga claims no great originality in these

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endoscopes which are only slight, but effective modifications, of Bensaude's instruments.

Pitanga's anoscope is a cylindrical metallic tube, 60 millimeters in length without a long handle, but with a metallic slide which is sufficient for holding the instrument.

Three types of anoscopes, according to calibre, are described: one, the so-called operative anoscope, 25 millimeters in diameter, the medium, 19 millimeters in diameter, and the narrower, 17 millimeters for pediatric use.

Pitanga's proctoscope is a tube similar to the anoscope, being 10 centimeters long and 19 millimeters in diameter, with an external light. All these endoscopes include corresponding obturators.

The Pitanga syringe for injection of hemorrhoids (Fig. 1) consists of a bayonet shaped canula 85 mm. by 2 mm., one end of which is adapted to any syringe, directly or by means of a passe-partout, the other extremity being a small cone to which any needle may be attached. The bayonet shape affords the

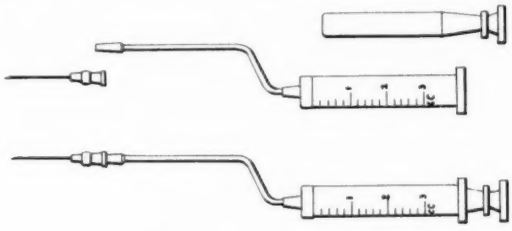

Fig. 1—Pitanga's syringe.

surgeon a clear view of the operative field. The 85 mm. length makes possible its use with any type of anoscope. An advantage of this canula is its simplicity.

Pitanga's hemorrhoidectomy:—This is a modification of the Earle operation and has been performed in Brazil for the past ten years.

Technic:—Local anesthesia 2 per cent novocain without adrenalin. Four Kocher's clamps are applied to the hemorrhoids.

Exteriorization of the hemorrhoidal masses is produced by smooth traction on the clamps. One of the hemorrhoids is clamped in its whole volume and extension, with a Kocher clamp, and the hemorrhoidal mass is excised upon the clamp, which is kept in situ. The first clamp is taken off and a ligature is placed at the apex. The same is done with the other hemorrhoids. Suturing is not done at all. After the excision of all hemorrhoids, the tractioning Kocher's clamps are taken off and the operative field retracts. Then, any protruding tags present are excised. The anal canal is anointed with vaseline. A sterile gauze dressing, kept in place by a T binder, is used. No drain is necessary.

Experimental studies on megacolon. Correia Netto's operation for megacolon:—Megacolon has been carefully studied by the so-called "Paulist School", from Sao Paulo (composed of Correia Netto, Etzel, Montenegro, Amorim,

Monteiro, and others), and several points were clarified including a new method in the prophylaxis of this disease and a new method of surgical treatment.

Based upon the sphincteric theory and the histologic lesions caused by achalasia in Auerbach's plexus at the level of the pelvirectal sphincter, Dr. Etzel and his associates verified the fact that megacolon is a symptom of intramural autonomic nervous system atrophy, as is megaesophagus, megaureter, megabladder etc. He suggested, on the basis of experimental work in animals and careful observation in man, that destruction of Auerbach's plexus at the level of the sphincter is caused by chronic B_1 avitaminosis.

Although Vitamin B_1 cannot cure this disease when the Auerbach plexus lesion is advanced, it can limit the pathologic process, preventing the development of similar manifestations in other organs.

Congenital megacolon is probably different from the acquired type and must be related to an abnormal development of Auerbach's plexus at the level of the corresponding sphincters.

Dr. Eduardo Etzel presented a complete work on "Megacolon and its modern conception" to the Congress of Gastroenterology, under the sponsorship of the Sociedad de Gastroenterologia y de la Nutrition, de Buenos Aires, in 1941.

Hurst's work on megacolon indicating achalasia of the sphincters as the cause of the enlargement and hypotonicity of the intestinal segments immediately above, helped a great deal in clarifying this subject.

Martin and Burden, of Philadelphia, applied the Rammstedt operation to the surgical treatment of megacolon, but section of the sphincter only was followed by restoration of the muscular fibres and for this reason Dr. Correia Netto suggested partial resection of the corresponding sphincter replacing the simple section done by Drs. Martin and Burden.

The resection of the sphincter is said to produce good results and is advocated by most surgeons who have had the opportunity to perform it.

The segmental resection of the internal anal sphincter for megarectum is done through the perineum, and the pelvirectal sphincter resection for megacolon or megasigmoid is done through the abdominal approach.

The technic of resection of the internal anal sphincter as performed by Dr. Correia Netto, and described by Dr. Gutierrez of Buenos Aires follows:

The patient is placed in lithotomy position. A semicircular incision is made on the right side of the anus. The external anal sphincter is exposed and then retracted laterally. The index finger is introduced into the rectum and, with the aid of two clamps, the internal edge of the wound is pulled medially.

With this procedure the internal sphincter is easily identified, is freed from surrounding tissues, and a large part of it resected, being careful not to damage the mucous membrane.

The technic of resection of the pelvirectal sphincter, as performed by Dr. Correia Netto and described by Dr. Gutierrez is as follows:

Suprapubic incision; retraction of the small intestine and the sigmoid cephalad. Transverse incision of the rectovesical or rectouterine peritoneum and retroperitoneal fascia toward the lower part of the rectum, exposing the upper third of the rectum. Incision of the serosa and muscularis for about 12 to 18 cm. in the anterior tenia. Dissect laterally for 4 cm. This is a very delicate procedure, since the mucosa may be opened accidentally.

The lateral flaps are excised and the bare surface of the sigmoid is covered with peritoneum or part of the great omentum.

Dr. Correia Netto agrees that at the same time you can also perform a resection of the sympathetic system by the technic of Wade and Royle, or Judd and Adson, or else the resection of the superior hypogastric plexus and inferior mesenteric plexus, according to the technics of Rankin and Learmonth.

According to many Brazilian surgeons, the results of this operation are satisfactory. Constipation disappears and the other symptoms show improvement.

Schistosomiasis:—Schistosomiasis is very common in many regions of Brazil. Dr. Pirajá da Silva pointed out a new type of schistosoma, which took the name of schistosoma Manson-Pirajá da Silva. One of the first clinical descriptions of schistosomiasis in Brazil was given by the late Prof. Prado Valladares of Bahia.

The digestive tract is the organ most affected by the schistosoma. The eggs in the rectum and colon produce lesions that can be studied as the intestinal lesions of schistosomiasis. The sigmoid colon and rectum are believed to be the more susceptible segments of the intestinal tube, and present varied physical and physiological changes.

Three types of schistosomiasis are usually described, as follows:

1. The *ulcerative*, which affects the mucosa and submucosa of the gut. The lesions are always covered by mucoserous liquid. Microscopically, adenomatous proliferation of the ulcer is seen and eggs of "shistosoma" found.

2. The *polypoid* form, in which numerous "schistosoma" are very often found in the tissue. Schistosomotic polyps frequently have been mistaken clinically for cancerous lesions, so that only the pathologic examination is able to yield the differential diagnosis. It is said that in Brazil the frequency of these specific polyps is less than in many other countries affected by the same helminthiasis.

3. The *hyperplastic*, stricturing form presents narrowing and ulceration in the rectum sometimes producing mechanical obstruction that requires an emergency colostomy. The differentiation between this rectal narrowing and lymphogranuloma venereum stricture has been relatively easy because in the schistosoiasis there is a large ulcer around which the entire pathologic process develops and the picture does not include all the layers of the bowel as homogeneously as in the Nicolas-Favre rectitis.

Macroscopic pathologic modification of the organ comes frequently a long time after the microscopic lesions and this is the reason why patients seek medical advice in a very advanced stage of the disease.

It has been advised by many practitioners that the diagnosis of intestinal schistosomiasis may be made by examination of stools conveniently collected in ten per cent formaldehyde solution for at least eight days. Sometimes, in polypoid cases, stool examination fails and biopsy is advisable. The pathologic anatomy shows the schistosoma in microscopic lesions in all layers of the rectum and colon, chiefly in the mucosa, which is the site of choice of the parasite. In some cases of ulcerated schistosomotic colitis, there has been reported microscopic adenomatous proliferation of the mucosa, in the borders of the ulcer. There is very often infiltration, edema of the mucosa, and thickening of the submucosa. Sometimes, infiltration and sclerosis of the submucosa is found. Important and marked changes in the vessels are noted affecting all the layers.

The most recent diagnostic method for determining schistosomiasis is biopsy of the rectal mucosa, removed from one of the lowest Houston valves. Dr. Jose Rodrigues da Silva, who presented one of the most complete theses on schistosomiasis, was the pioneer in this diagnostic method in Brazil.

Accurate and more numerous observations on the proctological aspects of schistosomiasis show that the most frequent indications are atelectasis, granulous aspect and paleness of the mucosa.

The surgical treatment consisting of abdominal colostomy, is done only in obstructive cases caused by the schistosoma.

The medical treatment by tartar emetic intravenously apparently gives good results at times with a considerable relief of the symptoms. Simultaneously local antiseptic treatment has been advised.

Lymphogranuloma venereum stricture of rectum:—Benign lymphogranuloma venereum stricture of the rectum is often observed in some areas of Brazil.

The best works on this subject we know in Brazilian literature are by A. Xavier, S. d'Avila, Pitanga, Correia da Costa, Cotrim, M. Caldas and Peltier de Queiroz.

The Frei test is positive in cases of fibrous and inflammatory stricture of rectum, and the diagnosis may be quite certain by rectal palpation.

The association of schistosomiasis and lymphogranuloma has been found in some regions, as in Bahia.

The stenoses have been characterized by the following x-ray findings: (1) stenosis of anorectal region, (2) stenosis showing vague irregular outline, found in malignancy, (3) frequent fistulous tracts from the strictured area to the perirectal tissue.

Dr. Eduardo Cotrim of Sao Paulo has written a very well documented work on radiologic study of this condition. Dr. Cotrim finds that (1) by filling the rectum with contrast media we are able to determine the degree of rectal stenosis, (2) we are able to determine the location and extension of the stenosing process, (3) we can study the mucosal surface and find fistula, diverticuli and perforations that connect the rectum with neighboring organs, (4) we determine the size of the sigmoid, which is of great importance in the surgical treatment.

Enlarged inguinal lymph nodes are present in most cases of lymphogranuloma venereum stricture of the rectum.

Nicolas-Favre's rectal disease reminds us of the cancer problem. Early diagnosis has a decisive influence on the end results of treatment.

The majority of rectal lymphogranulomatous patients come to see the doctor after the disease has lasted four to six years, and at that time the pathologic process has invaded all layers of the bowel and is irreversible with medical treatment often necessitating emergency colostomy.

In the early phases of the disease, it does not seem difficult to obtain complete cure by means of local and oral use of sulfa drugs.

Pitanga performs a partial rectotomy following medical treatment. He also uses rectal bougies with diathermy.

Drs. d'Avila, Xavier and some others perform abdominoperineal resection preserving the sphincter, after thorough preoperative treatment, including pararectal injections of sulfanilamide.

They have a relatively considerable number of cases (over 300) most of them successfully cured, with over five years follow-up.

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CHAPTER ACTIVITIES

New York Chapter

The Annual Meeting of the New York Chapter of the National Gastroenterological Association was held at the home of Dr. Samuel Weiss, on Monday evening, 16 May 1949.

Officers reelected for the coming year are: Dr. William C. Jacobson, President, Dr. Isidor L. Ritter, Vice-President, Dr. Harry Barowsky, Secretary and Dr. Elihu Katz, Treasurer.

Wilkes-Barre-Scranton Chapter

A meeting of the Wilkes-Barre-Scranton Chapter was held on 28 April 1949 at Moosic, Pa. The President of the Chapter, Dr. Samuel Friedmann, called the meeting to order. Those present included Drs. Fred Robinson, Scranton, Bernard Smiley, Scranton, G. N. Fleugel, Wilkes-Barre, Howard Y. Harris, Kingston, F. J. Conlan, Ross Mantione, Eugene Kelley, Albert Biederman, E. M. Hill, Pittston, and Edmund Matys, Dupont.

Dr. Matys presented a paper on "Gallbladder Disease, its Surgical Treatment" and Dr. Robinson on "Gallbladder Disease, its Medical Treatment." A general informative discussion was held. A collation followed the meeting.

The next meeting was scheduled for 23 June 1949 and a summer outing was discussed.

The Chapter discussed the forthcoming annual Convention in Boston and many of those present expressed the desire to attend and quite a few definitely stated that they would attend the meeting.

NEWS NOTES

Ladies Committee Activities at the Convention

A Ladies Committee under the chairmanship of Mrs. Francis T. Jantzen, of Boston, Mass. met at the Harvard Club in Boston to discuss plans for activities for the wives and families of members of the National Gastroenterological Association and their guests, attending the Convention in Boston in October.

In addition to attending the President's Annual Reception on Monday evening, and the Annual Banquet on Tuesday evening, the ladies of the Boston Chapter have arranged for sightseeing trips around Boston in private automobiles, for Tuesday morning, to be followed by a luncheon at the Harvard Club in honor of Lady Webb-Johnson of England.

Mrs. Jantzen also announced that each lady attending the Banquet on Tuesday evening, 25 October 1949 would be presented with an orchid. Further information will be contained in a letter which is being mailed directly to the ladies.

Fourteenth Annual Convention Program

The program for the Fourteenth Annual Convention of the National Gastroenterological Association will be published in its entirety in the September 1949 issue of The Review of Gastroenterology.

Outstanding speakers will address the Convention on topics which will be of interest to all those in the field of Gastroenterology and allied specialities.

Postgraduate Course in Gastrointestinal Surgery

The program for the Postgraduate Course in Gastrointestinal Surgery sponsored by the National Gastroenterological Association, in conjunction with the Postgraduate Division of Tufts Medical College and the First and Second Surgical Services of the Boston City Hospital, has now been completed and copies will soon be available for those interested.

The program may be obtained by writing to the National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

Applications for enrollment in the course may be obtained by writing to the same address. The fee for the three day course will be $35.00 per person and the course has been approved for veterans under the G. I. Bill.

International Academy of Proctology

The first business meeting and scientific session of the newly organized International Academy of Proctology was held at the Marlborough-Blenheim in Atlantic City on Friday, 10 June 1949.

Officers elected for the coming year are: President, Earl J. Halligan, Jersey City, N. J.; President-elect, Caesar Portes, Chicago, Ill.; 1st Vice-President, H. A. Springer, Cincinnati, Ohio; 2nd Vice-President, Edgar M. Scott, Jr., Birmingham, Ala.; 3rd Vice-President, I. Norman Albert, Johnston City, Ill.; Secretary, Alfred J. Cantor, Flushing, N. Y.; Treasurer, William Lieberman, Brooklyn, N. Y.; Chairman Board of Trustees (temporary), Earl J. Halligan, Jersey City, N. J.

Board of Trustees: William Lieberman, Brooklyn, N. Y.; Raymond S. Johnston, Kearney, Nebraska; Kenneth W. Kressler, Easton, Pa.; Carroll J. Bellis, Long Beach, Calif.; Donald C. Collins, Hollywood, Calif.; Evan C. Reese, Stroudsburg, Pa.; Francis S. Adams, Pueblo, Colo.; I. Norman Albert, Johnston City, Ill.; Paul Lahvis, Gowanda, N. Y.; H. A. Springer, Cincinnati, Ohio; William W. Meissner, Buffalo, N. Y.; Harry A. Gussin, Chicago, Ill.; Edgar M. Scott, Jr., Birmingham, Ala.; Earl J. Halligan, Jersey City, N. J.; Caesar Portes, Chicago, Ill. and Alfred J. Cantor, Flushing, N. Y.

Dr. Alfred J. Cantor was unanimously acclaimed the first president of the Academy in recognition of having organized and carried on the work of the Academy for the first year single-handedly.

Membership in the Academy is open to those who are specializing in Proctology or allied fields. Further information and application blanks may be obtained by writing to the International Academy of Proctology, 43-55 Kissena Blvd., Flushing, N. Y.

In Memoriam

We record with profound sorrow the passing of Dr. Thomas T. Sheppard, Member, of Pittsburgh, Pa.

We extend our sincere condolences to the bereaved family.

Correction

In the Book Review "Coronary Artery Disease" by Ernst P. Boas, M.D., which appeared on page 521 of the June 1949 issue of The Review of Gastroenterology, the paragraph commencing "The sudden death" should have read as follows:

The sudden death of Meneleaus' boatman, Onetor's son Phrontis, in Homer's Odyssey (Book III), the death of Sophocles, who spoke of "a little stroke puts aged bodies to sleep" (Oedipus Tyrannus, 961) due to coronary thrombosis, (Seneca suffered from angina pectoris and coronary artery disease) and the description by Warwick (Part Second, King Henry Sixth, Act III, Scene 2, by Shakespeare) "of ashy semblance, meager, pale and bloodless, Being all descended to the laboring heart—which with the heart there cools, and ne'er returneth. To blush and beautify the cheek again" are all examples of "coronary deaths"!

ABSTRACTS

Stomach

ONSET OF PEPTIC ULCER IN THE AGED. Henry A. Rafsky, M. Weingarten and C. I. Krieger. J.A.M.A. **136**:739-742, (Mar. 13), 1948.

Previously (J.A.M.A., **118**:5-9, Jan. 3, 1942) the authors reported that 56, or 13.7 per cent of 408 cases of bleeding peptic ulcer were patients over 60 years of age. In nearly half of these cases the first symptoms of ulcer appeared after the fifth decade.

In a study of gastric secretion in the aged (Gastroenterology, **8**:348-352, March 1947) these authors found hyperchlorhydria in 12.7 per cent of persons over the age of 65 years.

They advise great care in the use of atropine or belladonna in old people with ulcer (danger of acute glaucoma) and the avoidance of soluble alkalis in old patients with impaired renal function. They prefer the "newer" adsorbent aluminum hydroxide and magnesium trisilicate.

They emphasize the fact that "the serious complication of hemorrhage appears to be more frequent in patients over 60 years of age"—however, a very much larger series of bleeding cases of all ages must be further studied to substantiate these statistics.

Perforation of a peptic ulcer, of course, requires immediate surgical intervention, irrespective of the age of the patient. Pyloric obstruction due to ulcer, in older patients often responds to medical treatment—such as, gastric lavage, antispasmodics, liquid and semiliquid diet, and the avoidance of dehydration and hypoproteinemia. Phrenic crushing (O. C. Pickhardt) may prevent recurrent bleeding in old people with bleeding from an ulcer or erosion in a hiatus hernia. Early ambulation prevents pulmonary embolism—and so the period of bed-rest is to be shortened.

Hyman I. Goldstein

RESULTS OF VAGUS NERVE RESECTIONS IN TREATMENT OF PEPTIC ULCER. Waltman Walters, Neibling, Bradley, Small and Wilson. J.A.M.A. **136**:747, (March 13), 1948.

These authors reported previously on a group of 83 cases (Gastric neurectomy—J.A.M.A., **133**: 459-461, Feb. 15, 1947)—63 through the abdominal route, and 20 cases through the thoracic route. The authors now report on the favorable and unfavorable results in a total of 118 cases (May 1, 1947).

This series of 118 cases (up to May 1st, 1947) included—duodenal ulcer, gastrojejunal ulcer, and gastric ulcer.

They did vagotomy alone in some patients and vagotomy with simultaneous gastric operation in others. HYMAN I. GOLDSTEIN

DIAPHRAGMATIC HERNIA FOLLOWING SUBDIAPHRAGMATIC VAGOTOMY. John M. Beal. Surgery. **24**:625-627, (Oct.), 1948.

A case report of subdiaphragmatic vagotomy (October 11, 1947) in a white American man, 37 years of age, followed by a hiatus hernia of the paraesophageal type is presented, which was later (May 28, 1948) successfully repaired (transthoracic). HYMAN I. GOLDSTEIN

NEUROGENIC TUMORS OF THE STOMACH. John P. West and G. Knox. Surgery. **23**:450-466, (Mar.), 1948.

Tumors derived from the nerve sheath are not common in the stomach. These tumors have been described under different names—schwannomas, neurolemmas, neurofibromas, etc.

The authors are concerned primarily with eight patients operated upon at St. Luke's Hospital with gastric tumors of nerve sheath or smooth muscle origin.

One of these patients a 33 year-old woman had a neurofibroma of the (cardia) stomach 4 x 3½ x 3 cm. This patient had no free hydrochloric acid after histamine.

The outstanding symptom in six of the eight patients was bleeding. Pain was not a prominent symptom. Gastric analysis was not of definite value as a diagnostic procedure. A roentgen diagnosis of gastric tumor was made in seven of the eight patients. These tumors may undergo malignant degeneration. There were seven neurogenic and one smooth muscle tumor of the stomach in this series. Local excision is adequate for the benign tumors. HYMAN I. GOLDSTEIN

THE GASTRIC MUCOSA AFTER VAGOTOMY FOR PEPTIC ULCER: A GASTROSCOPIC STUDY. Leonard M. Asher. Gastroenterology. **11**:303-316, (Sept.), 1948.

Asher refers to Dragstedt's reintroduction of section of the vagus nerves in the treatment of peptic ulceration. Paulson and Wolff have reported diminished motility of the antrum and pylorus in a majority of cases gastroscopically examined after vagotomy. Changes in the gastric mucosa have also been noted. Asher studied twenty cases (vagotomized) gastroscopically.

Vagotomy produces definite gastritic changes in the gastric mucosa. These changes occurred in most of the patients. Altered motility, altered circulation, altered secretion of mucin with dissociation of acid and mucin secretion are brought about by vagotomy and influence the development of gastritis. The gastric mucosa becomes more susceptible to physical trauma. Gastroenterostomy when done with vagotomy reduces the incidence of gastritis and mucosal erosions from 75 per cent to 50 per cent. HYMAN I. GOLDSTEIN

ACHLORHYDRIA AND PEPTIC ULCER: A FURTHER STUDY OF THE ROLE OF PEPTIC ACTIVITY IN THE PATHOGENESIS AND COURSE OF PEPTIC ULCER. William E. Ricketts, Walter Lincoln Palmer, Joseph B. Kirsner and Anna Hamann. Ann. Int. Med. **30**:24-39, (Jan.), 1949.

In this report the authors present a study on the effect of achlorhydria upon the course of peptic ulcer. Palmer, and Palmer and Nutter (1926, 1940, 1942) have shown the invariable presence of acid gastric juice in patients with chronic peptic ulcer, and the absence of ulcer in patients with persistent achlorhydria as in pernicious anemia.

In 170 cases of gastric ulcer, Palmer et al. found nine were achlorhydric after the first stimulation with histamine, however, free hydrochloric acid was found in subsequent examinations. In each of 500 patients with active duodenal ulcer reviewed by the authors, the maximum response to histamine stimulation was above 40 clinical units: They have never seen an active duodenal ulcer in patients with pernicious anemia or gastric cancer. Chronic peptic ulcer occurs only in association with acid gastric secretion. Achlorhydria lasting longer than three months produces complete healing of peptic ulcer irrespective of the age of the patient or the duration of the disease.

Spontaneous or induced achlorhydria, if permanent, produces permanent healing of peptic ulcer. HYMAN I. GOLDSTEIN

THE SURGICAL TREATMENT OF PEPTIC ULCER. George Crile, Jr. S. Clin. North America. 1123-1137, (Oct.), 1948.

Gastric ulcer and duodenal ulcer are different diseases which have different consequences and require different treatment.

Oversecretion of hydrochloric acid plays a more important role in duodenal ulcer than in gastric ulcer. The acidity of gastric juice may be normal or even low in gastric ulcer. Gastric ulcer occurs in older patients than does duodenal ulcer.

The results of gastric resection for duodenal ulcer have left much to be desired. Waltman Walters and Ralph Colp think otherwise! Results of gastric resection for gastric ulcer are excellent.

Crile, et al., believe that transabdominal (Pieri-Tanferna operation) vagotomy coupled with pyloroplasty or gastroenterostomy for duodenal ulcer, is a safer procedure than gastric resection and more effective, with lesser morbidity and disability, and lesser likelihood of recurrent ulceration than gastric resection.

Crile concludes that vagotomy and gastroenterostomy or pyloroplasty is the treatment of choice when surgical intervention is indicated for duodenal ulcer.

Duodenal ulcer is primarily a medical problem, and surgical treatment is necessary only after a fair trial of medical therapy has failed.

Gastric ulcer should be treated by gastric resection. Transabdominal vagotomy is the preferred treatment for gastrojejunal ulcer.

HYMAN I. GOLDSTEIN

INTESTINES

THE SURGICAL TREATMENT OF POLYPOSIS OF THE COLON. Fred W. Rankin and J. G. Webb. Southern Surg. **14**:671-682, (Oct.), 1948.

The authors refer to the publications by Rankin and Graham (1939), Dukes (1930), Pfeiffer and Patterson (1945), Erdmann and Morris (1925), Harrison R. Wesson and Bargen (1934), G. Hauser, Fitzgibbon and Rankin (1931), Buie, Lockhart-Mummery (1934), McKenny (1936), Ravitch and Sabiston (1947), and others.

They refer to the classification by Erdmann and Morris (1925): 1) Adult or acquired type postinflammatory pseudopolyps; 2) Adolescent or congenital true adenomatous growths.

The only way to diagnose diffuse polyposis of the bowel is by careful proctosigmoidoscopic and roentgenologic examination. "Any patient presenting symptoms suggestive of a large bowel lesion is a potential case of polyposis", and complete studies are necessary for a diagnosis, as there are no pathognomonic symptoms of the disease. The authors favor Ravitch's total colectomy with preservation of the anal sphincter and the establishment of an anal ileostomy, and feel that "it is fundamentally sound and offers a more satisfactory result than the present procedure". They report ten cases typical of diffuse polyposis of the colon.

Rankin and Webb credit Menzel (1721) with the first report of an authentic case of diffuse polyposis or adenomatosis of the colon, and subsequent observations by Rokitansky in 1839.

Diffuse polyposis or adenomatosis of the colon is a fairly common condition which has a definite hereditary tendency. These lesions easily become malignant. The authors do subtotal colectomy (preceded by ileosigmoidostomy) and fulguration, or preceded by fulguration. This has been their routine for the past ten years.

HYMAN I. GOLDSTEIN

MALIGNANT TUMORS OF THE SMALL INTESTINE. E. A. Maxwell, George Crile, Jr. and R. S. Dinsmore. S. Clin. North America. 1149-1157, (Oct.), 1948.

Malignant tumors of the small intestine were found in fewer than two cases a year at the Cleveland Clinic. From 1922 to 1946 there occurred among their patients forty malignant tumors in the small intestine. 36 were found at operation and 4 at necropsy.

Carcinoma occurred in twenty-one cases, sarcoma in thirteen cases, carcinoid in 5 cases, and both a sarcoma and a carcinoid in the terminal ileum in one case.

The adenocarcinomas may arise from polyps, according to Ewing (1940). Stenosis of the lumen of the small intestine is rare and occurs late in sarcomas, because they tend to grow outward from the serosa. Malignant tumors of the small intestine form only 3 per cent of the malignant tumors found throughout the intestinal tract (Ewing, 1940). The occurrence of malignant tumors of the small intestine, among men was two and one-half times that among women.

The authors conclude that malignant tumors of the small intestine are rare. Symptoms do not occur until late in the disease. The contents of small intestine are liquid and obstruction is a late manifestation. Late chief symptoms are general weakness, loss of weight, fatigue, anemia, and cramp-like pains in the midabdomen. These symptoms are often insidious—and pain develops late in the disease, and may be intermittent. The prognosis of malignant tumors of the small intestine is poor.

HYMAN I. GOLDSTEIN

PATHOLOGY AND LABORATORY RESEARCH

THE ASSOCIATION BETWEEN GASTRIC ACHLORHYDRIA AND SUBACUTE COMBINED DEGENERATION OF THE SPINAL CORD. Tom D. Spies, R. E. Stone, G. G. Lopez, Fernando Milanes, T. Aramburu and R. L. Toca. Postgrad. Med. **4**:89-95, (Aug.), 1948.

This report is the result of a two-year study of the effect of synthetic folic acid in persons with macrocytic anemia in Birmingham, Alabama and Havana, Cuba. The authors state that folic acid is an effective anti-anemia substance capable of producing a clinical response and hematologic re-

mission in persons with nutritional macrocytic anemia, tropical sprue, and the macrocytic anemia of pellagra and pregnancy.

Folic acid stimulates the bone marrow in pernicious anemia without preventing the neural disturbances. Massive liver extract therapy relieves neural symptoms. In every instance in which subacute combined degeneration developed in their series, the patient had gastric achlorhydria, on repeated tests following histamine, prior to folic acid therapy.

Leading hematologists urge the continued use of effective liver therapy rather than folic acid. The new B_{12} vitamin preparation may become a generally used and more effective remedy for pernicious anemia and other severe macrocytic anemias. HYMAN I. GOLDSTEIN

LIVER TUMORS IN RATS FED THIOUREA OR THIOACETAMIDE. O. G. Fitzhugh and A. A. Nelson. Science. **108**:626-628, (Dec. 3), 1948.

Purves and Griesbach (1947) observed adenomas of the thyroid glands in rats treated with 0.25 per cent thiourea in their drinking water for 12 months or more. After 20 months, these tumors became malignant. Fitzhugh, Nelson and Holland (1948) found the production of liver tumors to be one of the chronic effects of thiourea. The authors discuss the nature of these liver tumors and their high incidence in thiourea-fed rats. They conclude that thiourea, administered orally to albino rats for a prolonged period of time, induces liver tumors, without liver cirrhosis, in a large percentage of cases. Thioacetamide appears to be slightly tumorigenic in the rat liver and in addition, is a very potent producer of nodular cirrhosis. HYMAN I. GOLDSTEIN

THE HYPOTHALAMUS AND WATER METABOLISM. G. W. Harris. Proc. Roy. Soc. Med. **41**:661-666, (Oct.), 1948.

The hypothalamus can influence water metabolism, by influencing sweating, vascular tone, respiration, and by other means.

The author considers only the control exerted through the mediation of the pituitary gland, and discusses the anatomical connections between the hypothalamus and hypophysis—the hypothalamo-hypophysial tract, (nervous pathway) which ends chiefly in the neurohypophysis—and the hypophysial portal vessels (vascular connection) which connect with the adenohypophysis. The hypothalamo-hypophysial tract starts in various hypothalamic nuclei. The hypophysial portal vessels were first described by Popa and Fielding (1930, 1933) and later by Wislocki and King (1936).

Small twigs of the internal carotid arteries supply a vascular plexus between the pars tuberalis and the median eminence.

Discussion is continued on the postpituitary extracts, the amount of antidiuretic hormone liberated from the neurohypophysis by stimuli; and the two fractions (pressor and oxytocic) of the postpituitary extracts. Mention is made of the von Hann-Richter hypothesis—that a maximum diabetes insipidus only occurs in the presence of some normally functioning anterior pituitary tissue. According to Harris the excretion of the anterior lobe is under the control of the nervous system. This nervous control is one of the fundamental problems of endocrinology today.

In summary, the author states that the hypothalamus controls the neurohypophysis by means of the supraoptico-hypophysial tract, and that stimulation of this tract results in release of the antidiuretic hormone and inhibition of a water diuresis. The hypothalamus controls the adenohypophysis, and so the various diuretic processes, by neuro-vascular transmission of stimuli, through the hypophysial portal vessels. W. J. O'Connor discusses the hypothalamus and urine secretion.

HYMAN I. GOLDSTEIN

LIVER AND BILIARY TRACT

HEPATIC COMA. T. L. Murphy, Chalmers, Eckhardt and Davidson. New England J. Med. **239**:605-612, (Oct. 21), 1948.

This report is based on clinical and laboratory observations on forty patients at Boston City Hospital and Harvard Medical School (1945-1946) (Thorndike Laboratory).

Hepatic coma is a distinct clinical syndrome, characterized by a progression from lethargy to noisy confusion, to coma and usually death. The physical examination and laboratory findings during coma are not distinctive nor are they significantly different from precoma findings.

HYMAN I. GOLDSTEIN

BOOK REVIEWS

SHOCK AND ALLIED FORMS OF FAILURE OF THE CIRCULATION. H. A. Davis, M.D., C.M., F.A.C.S., Associate Professor of Surgery, Director, Division of Surgery, Graduate School of Medicine, College of Medical Evangelists, Los Angeles Division, Senior Attending Surgeon, Los Angeles County General Hospital, Visiting Surgeon, Cedars of Lebanon Hospital and California Hospital. 595 pages, Grune & Stratton, New York, N. Y., 1949. $12.00.

This latest volume on "Shock" with its seventeen chapters and nearly six hundred pages covers an important subject in a very thorough manner. The author evidently did most of the preparatory work for this book at the Louisiana State University School of Medicine. He gives due credit to Doctors Maes, Eaton, Ryklan and Brazda of this medical School. The text was completed early in 1948.

There is an interesting historical introduction and classification. The author states the word "shock" was first used in the English translation of the writings of a French surgeon by the name of Le Dran in 1743, and was later used by Woolcomb (1770) and John Hunter (1776). He refers to the writings of O'Shaughnessy (1831), Fagge (1874) and Blum (1876), and to peptone shock by Fano (1881). He mentions, that Pike et al. in 1908 demonstrated that failure of the vasomotor center was not the primary cause of shock, and Dale and Laidlaw (1910) showed that histamine could produce failure of the circulation. It was Corvell in 1918, who first differentiated primary from secondary wound shock. The Frenchmen, Quenu, Bertheiot, and Vallée, and others in 1918 proposed the toxemia theory of traumatic shock. The author gives the following definition for shock: "Shock is a state involving the entire organism, characterized by a generalized impairment of the circulation, and caused by any form of stress or injury which reduces the output of blood from the left ventricle of the heart to a level below that needed for normal cellular function and metabolism".

The author clearly and satisfactorily discusses "Diagnosis of shock and shocklike states", "pathogenesis of traumatic shock and its physiologic changes", as well as "biochemical changes". "The pathology of traumatic shock and hemorrhage", and the effects of anoxia and hypoxia, as well as "irreversible shock" are informatively presented. Circulatory failure associated with toxemias and infections, and with diseases of the liver, following burns, and that resulting from anesthesia, all receive adequate consideration. He speaks of "The circulatory weakling" in Chapter 16. The author defines "the circulatory weakling" as "a person or lower animal whose circulatory response to the stress of everyday living is adequate but who, when subjected to unusual strain such as occurs during surgical operations, blood loss, anesthesia, severe infections and other types of stress, exhibits a capacity far below the normal for the species concerned to maintain an adequate circulation and who, therefore, succumbs more readily to failure of the circulation".

The closing chapter of 64 pages concerns itself with "Treatment of shock and allied forms of circulatory failure". There are about 22 references in the bibliography with this chapter on "Treatment". There are rather complete bibliographies with each of the seventeen chapters which adds considerably to the value of this volume.

In Chapter 10 (pp. 321-374) the author states that "the differentiation of medical shock from surgical shock would be unsound since the basic physiologic and biochemical events are similar whether the circulatory failure accompanies so-called surgical or medical diseases. The author does however, allocate 53 pages to the consideration of "Medical and Obstetric Shock", with a bibliography of six pages of references! Circulatory failure associated with diseases of the liver, and of the adrenal glands are discussed in Chapter 11. Here he considers circulatory failure in "liver death", and "hepatorenal syndrome", acute yellow atrophy of the liver, (acute necrosis of the liver), acute occlusion of the portal vein, Addison's disease, tumors of the adrenal glands, and massive adrenal hemorrhage.

All in all this latest volume on "shock" by an experienced surgeon, and close student of the subject, is recommended to all surgeons and clinicans, and to general practitioners.

MAJOR ENDOCRINE DISORDERS. S. Leonard Simpson, M.A., M.D., F.R.C.P., 552 pages, second edition, Oxford University Press, New York, 1948. Price $14.00.

This interesting and enlightening volume on "Endocrine Disorders" a subject which is becoming more and more important in clinical medicine, has been prepared with much care and profound understanding.

Readers will be pleased with the manner of presentation of the various sections. There are chapters on the Physiology and the clinical side of the pituitary and the various disorders associated with this all-important gland. Acromegaly, giantism, dwarfism, Babinski-Frohlich syndrome, gynandrism, Simmond's Disease, Cushing's syndrome, adiposity (pituitary), and lipodystrophy are discussed in 143 pages.

Section two covers the Adrenals with a discussion of the hormones, hypercorticalism, hypocorticalism (Addison's Disease) and hyperadrenalism (pheochromocytoma of adrenal medulla).

The physiology of the gland receives attention in section three. The discussions on the use of thiouracil, thyrotrophic hormone, carbohydrate metabolism, exophthalmic goitre, malignant exophthalmos endemic goitre, myxedema, are instructively and interestingly presented. Disturbances of the parathyroids, gonads and pancreas including hyperinsulinism and diabetes mellitus, are briefly, but adequately covered. There is an appendix on the use and standardization of hormones and an index on skeletal development.

This book is recommended to endocrinologists, general practitioners, and medical students, as a useful text on a rapidly growing branch of medicine.

VENOUS THROMBOSIS AND PULMONARY EMBOLISM. Harold Neuhof, M.D., Clinical Professor of Surgery, Columbia University, Consulting Surgeon to Mt. Sinai, Montefiore, Beth-El, and Hackensack, N. J. Hospitals, 159 pages, Grune & Stratton, New York, N. Y., 1948. Price $4.50.

This condensed monograph, on a subject which has become better understood during the past ten years, has now been further clarified by the author by its publication at this time.

The author ably and informatively considers the diagnosis of venous thrombosis in the lower extremities, including, also atypical forms of venous thrombosis and thrombosis and embolization postpartum, and after Gynecologic operations, venous thrombosis and pulmonary embolism in childhood, etc.

The author also discusses peripheral (subtotal) pulmonary embolism, diagnosis and treatment, the surgical treatment of venous thrombosis, and anticoagulant therapy. Dr. Neuhof's best section is Part II, covering "massive pulmonary embolism", etiology, mechanism of death, diagnosis, and treatment. The author includes a number of illustrative cases based in part on a study of 88 fatal cases. This monograph is recommended to physicians, and surgeons, obstetricians and gynecologists, interested in this subject.

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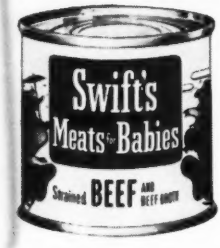

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The makers of Swift's Strained Meats invite you to send for your copy of "The Importance of Protein Foods in Health and Disease"—a physician's handbook of protein feeding, written by a doctor. Send to:

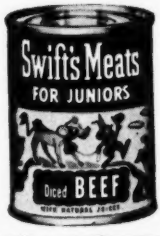
SWIFT & COMPANY

Chicago 9, Illinois

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

All nutritional statements in this advertisement are accepted by the Council on Foods and Nutrition of the American Medical Association.

For patients who can take foods of less fine consistency—Swift's Diced Meats offer tender morsels of nutritious meat with tempting flavors patients appreciate.



IN THE TREATMENT OF PEPTIC ULCER*

PROTOLAN AFFORDS AN ORAL PROTEIN THAT **REALLY** IS

- **PALATABLE**
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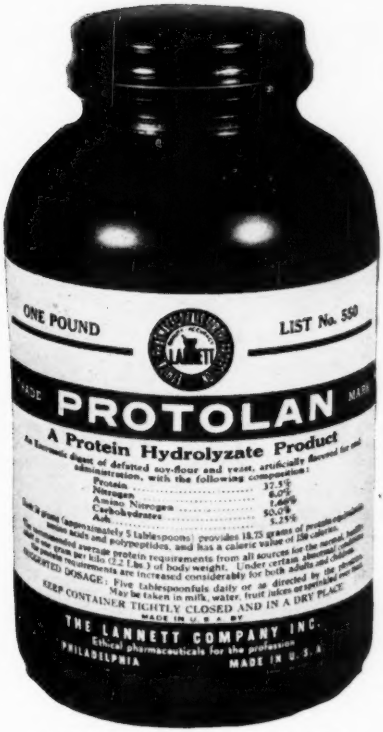

Available in 6 oz. & 1 lb. jars

PROTOLAN, the new Soya-Bean Protein Hydrolyzate, is an enzymatic digest of defatted Soya-Flour and Yeast, artificially flavored for oral administration. PROTOLAN supplies a full complement of the natural-occurring Amino acids and B-complex factors so essential to normal body maintenance and growth.

*FREE reprints available describing this new Protein Hydrolyzate and its use. Ask for article entitled "A New Protein Hydrolyzate for the Treatment of Peptic Ulcer".

Literature and clinical supplies upon request

Made in U. S. A. by

THE LANNETT COMPANY, INC.

Ethical Pharmaceuticals for the Profession

PHILADELPHIA 25, PA.

MIRACLE DRUGS CANNOT CURE THIS SICKNESS

We only wish there *were* a miraculous drug to stop a man from worrying.

Hundreds of thousands would buy it, because constant worry over money literally makes sufferers *sick!*

It's a sickness, however, that miracle drugs cannot cure.

Yet . . . something 'way short of a miracle can!

That's saving! Saving money . . . the surest, wisest way. With U. S. Savings Bonds.

All you do—if you're on payroll—is join your company's Payroll Savings Plan.

Or, if you're in business or a profession, enroll in the Bond-A-Month Plan at your local bank.

You'll be pleased to see those savings grow. Ten years from now, when your Bonds reach maturity, you'll get back $40 for every $30 you invested!

Is it peace of mind you want?

Start buying Bonds today!

AUTOMATIC SAVING IS SURE SAVING—
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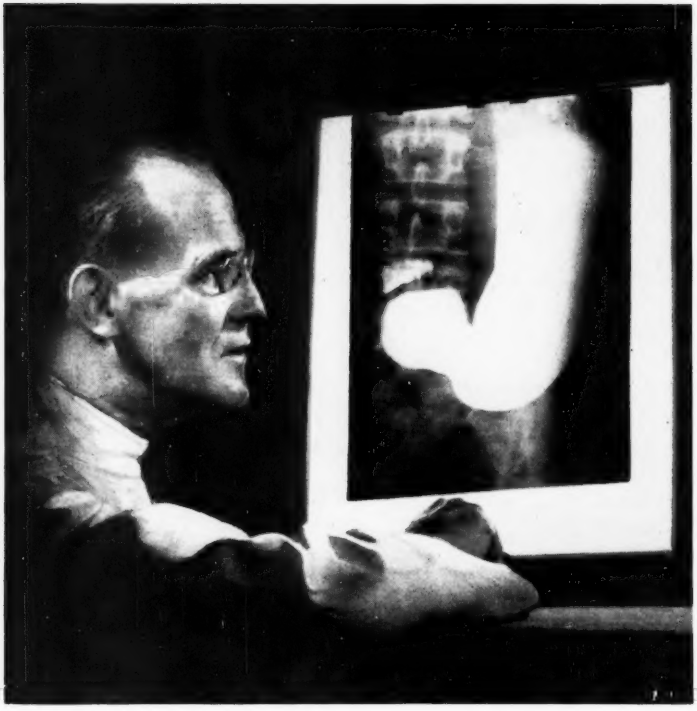


ROENTGENOGRAPHIC VERIFICATION

Of Effective Carminative Action

The clinical value of Allimin Garlic Tablets for carminative medication has been corroborated by controlled X-Ray studies.

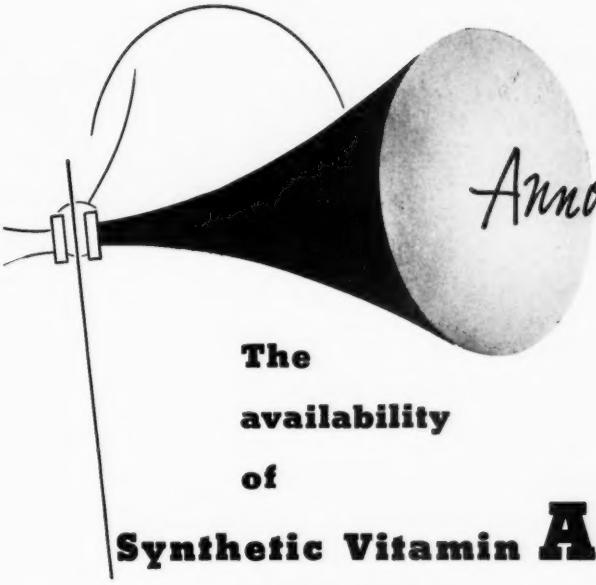
A series of gastro-intestinal patients was studied roentgenographically with and without Allimin medication. A comparison of the films demonstrated that Allimin Garlic Tablets have a sedative action on the stomach and intestines, relax spasm, retard peristalsis and disperse gaseous accumulations.

Allimin is the *original* garlic tablet recommended for use as a carminative. Each tablet contains 4 3/4 grains of dehydrated garlic, flavor modified with dehydrated parsley and sugar-coated for palatability.

Liberal Professional Samples and Literature on Request

the Safe and Effective Carminative . . ***allimin***

VAN PATTEN PHARMACEUTICAL CO., Chicago 26, Ill.



Announcing...

The availability of

Synthetic Vitamin A 'WARNER' CAPSULES

Eliminating fishy odor and taste

WILLIAM R. WARNER & CO., INC. takes pride in announcing the synthesis of VITAMIN A and its availability to the medical profession for therapeutic use.

Synthetic Vitamin A 'Warner' is identical structurally, chemically, pharmacologically and physiologically with natural vitamin A.

Synthetic Vitamin A 'Warner' (Synthetic Vitamin A Acetate) is more stable than natural vitamin A, thus minimizing deteriorative losses or destructive losses in the gastrointestinal tract. Synthetic Vitamin A Acetate 'Warner' is devoid of the fishy taste or odor so often found in natural vitamin A preparations.

The high stability of ***Synthetic Vitamin A 'Warner'*** assures greater available quantities for absorption and assimilation. Elimination of fishy odor and taste assures excellent tolerance by patients who are spared fishy aftertaste and fishy eructations.

Synthetic Vitamin A 'Warner' is indicated in all conditions where vitamin A therapy is required.

Synthetic Vitamin A 'Warner' (Synthetic Vitamin A Acetate), is available in packages of 24 sanitaped capsules, 25,000 units each.

WILLIAM R. WARNER & CO., INC.
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Amphojel—
double action
with a
single
purpose

Adequate protection for the peptic ulcer patient: this is the single purpose of **Amphojel**® —Aluminum Hydroxide Gel, Alumina Gel Wyeth—unique two-gel preparation. Amphojel's "antacid gel" provides **chemical** protection by reacting with gastric acid to reduce acidity to noncorrosive levels. Amphojel's "demulcent gel" provides **physical** protection and promotes healing.

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